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DEVELOPMENT OF DIGITAL ARABIC CONTENT: INCUBATION REQUIREMENTS AND TRAINING NEEDS

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Project on the
Promotion of Digital Arabic Content Industry through Incubation

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Introduction

With the propagation of the Internet, the value and accessibility of E-Content in the Arab World is starting to have interesting proportions. Traditionally, some countries in the Arab World are known to be quite prolific in terms of Printing, Publishing and Media production at large. Numerous Daily News-Papers, Magazines, Books and multiple other Publications are printed in Amman, Beirut, Cairo, Damascus and other capitals and distributed throughout the Middle-East and the whole World. Furthermore, the Media sector has been showing unprecedented dynamism during the past decade, all major International Advertising Agencies have offices in almost all the Arab capitals and are providing services for the whole region. TV Production and Broadcast is also a dynamic sector in the Arab World with hundreds of satellite channels covering the Middle-East, Africa, Asia, Europe and the Americas.

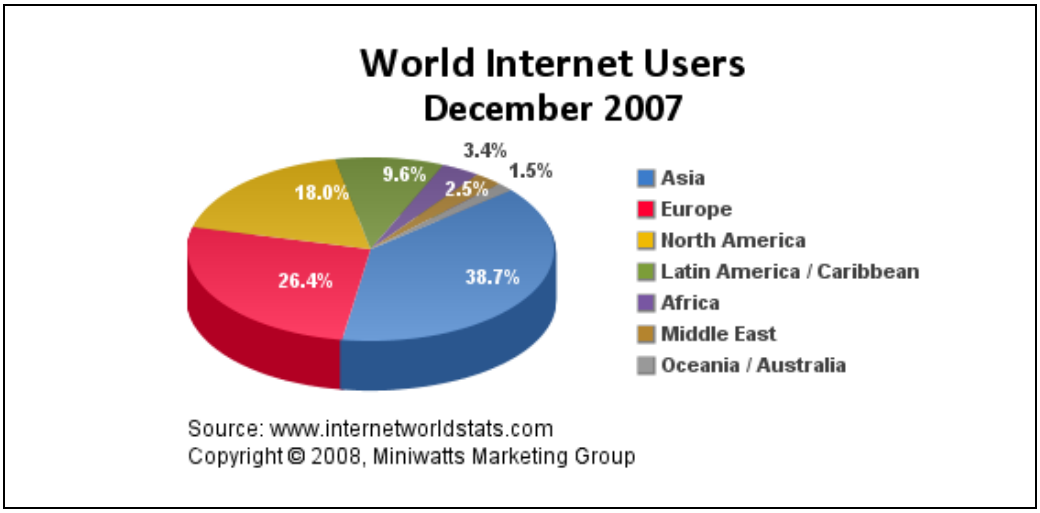
This vibrant position in the Publishing and Media arena is not coupled with a similar dynamism in the New Media - Interactive Media – E-Content arena, despite awareness and reach among the young generation.

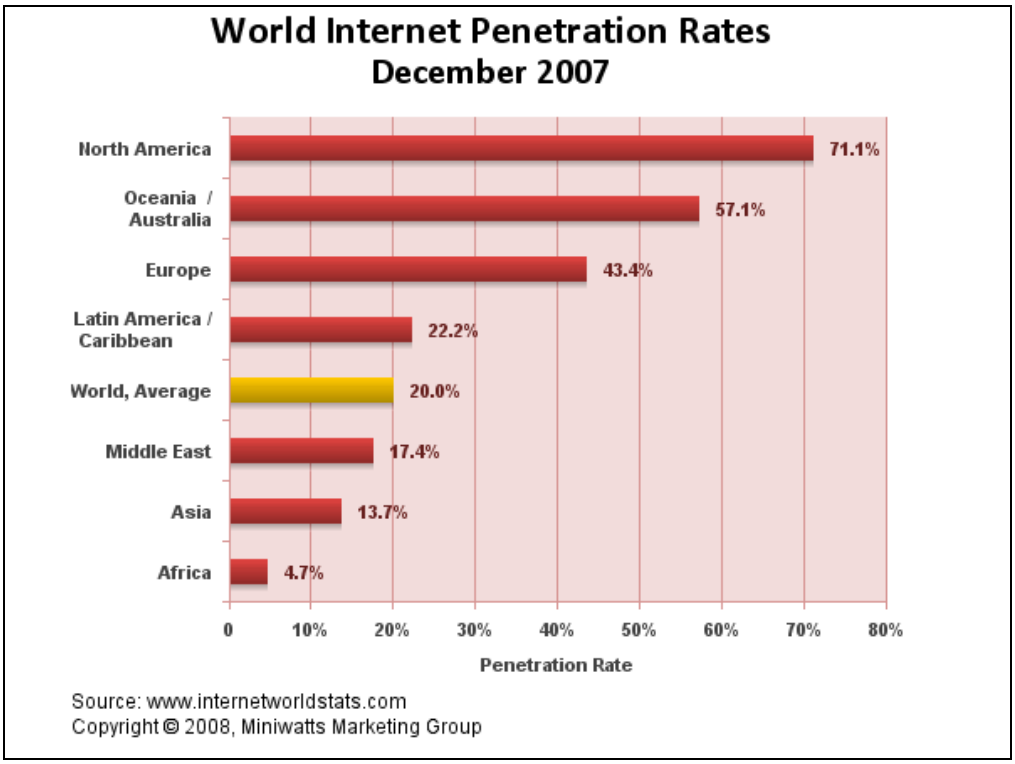
Some major enablers for the proliferation of E-Content producers were lacking during the Internet hype (1995-1999):

- High Cost of Telecommunications;
- Legal Framework especially Intellectual Property issues;
- Incubation facilities, Financing and Venture Capital;
- Size of the Local Market of each county;
- Absence of Arabic enablement of the Internet;
- Absence of R&D in specialized development.

This situation did not offer any incentives to local producers to invest heavily in any venture related to E-Content creation.

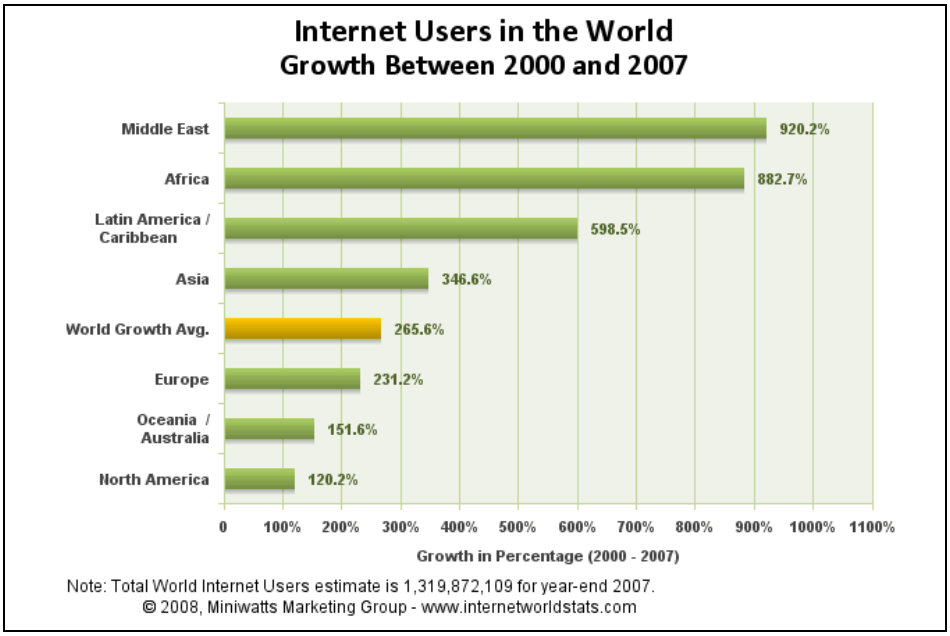
As a matter of fact, the size of the local markets is always critical to the viability of a Content provider. Although Arabs consider the Middle-East and the Arab Space (300 Million people) to be their local market, this did not provide the needed critical mass to ensure sustainability as this market has low Internet penetration compared to the West.





We have witnessed after 1999, serious developments and success stories in niche markets especially in entertainment related portals as well as e-Commerce, some e-Learning and e-Culture projects have been successfully initiated.

Today more serious developments are occurring in e-Business (Banking and Financial Services, Business Information Data-Banks,…), e-Health (Medical Records, Lab Records, Drug Distribution,…), e-Learning (Course Management and Delivery, Distance Learning,…), e-Culture (Cultural Heritage, Music Festivals, Cinema,…)



It is worth mentioning that the private sector was the only driving force behind the e-initiatives. Nevertheless Governments all over the Arab World are now on the verge of launching Billion Dollar projects for e-Government and related infrastructure that will help positioning the Arab World on the road to Information Society and create additional incentives for the young E-Content developers. The years 200 to 2007 witnessed over 900% growth in internet penetration in the Middle-East (the highest rate in the world) which shows that a positive turnaround is happening.

In view of the poor development of digital content in the Arab world, it is our right to question ourselves as per the opportunity of such a development and the level of sustainability of such an approach. Arabs have been successful in numerous areas of trade and finance so why are they missing the challenge of new media.

When dealing with new media, it is important to mention that "the medium is the message" (Marshall McLuhan - Quentin Fiore, 1967) - just as if this is the answer to all questions. The real message behind new media actually, is that it makes things possible that were not possible with the old media.

In that space we can assure that digital content has rapidly evolved from being a text-oriented information on the internet to a full fledged multimedia environment accommodating rich text, graphics, audio and video and several combinations of these media types. Today, E-Content is also no longer a *computer* based phenomenon but it has moved to all kinds of pervasive digital devices, such as mobile phones or personal digital assistants (PDAs) and other appliances.

Do we all have a common understanding of digital content, do we share the same definition. We believe that it would be wise to build our understanding on the same grounds by exposing the first definition of E-Content and by highlighting the essence, which brings its distinctive benefit.

E-Content is digital information delivered over network-based electronic devices, i.e. symbols that can be utilized and interpreted by human actors during communication processes, which allow them to share visions and influence each other's knowledge, attitudes or behavior.

E-Content allows for user involvement and may change dynamically according to the user's behavior. IT is a subcategory both of digital and electronic content, marked by the involvement of a network, which leads to a constant renewal of content (contrary to the fixed set of content stored on a carrier such as CD-ROM, or the content broadcast via TV and Radio).

This constant renewal of content in tie with its dynamic change allows for a qualitative difference, thus making it E-Content.

Andrea Buchholz – Ansgar Zerfass

Arabic Digital Content or Digital Content by Arabs

Some Arab countries are showing real vitality in the internet space, some others are still lacking the dynamism required to leapfrog to the next generation of online activity. The truth is that other indicators are showing that the Arab world is quite a good actor on the consumer side (popularity of some online activities, Satellite TV, mobile applications,…) but a poor producer of original content for its own use or for international use.

Middle East Internet Usage and Population Statistics						
MIDDLE EAST	Population (2007 Est.)	Usage, in Dec/2000	Internet Usage, Latest Data	% Population (Penetration)	(%) of M.E.	Use Growth (2000-2007)
Bahrain	708,573	40,000	157,300	22.2 %	0.5 %	293.3 %
Iran	65,397,521	250,000	18,000,000	27.5 %	53.7 %	7,100.0 %
Iraq	27,499,638	12,500	36,000	0.1 %	0.1 %	188.0 %
Israel	6,426,679	1,270,000	3,700,000	57.6 %	11.0 %	191.3 %
Jordan	6,053,193	127,300	796,900	13.2 %	2.4 %	526.0 %
Kuwait	2,505,559	150,000	816,700	32.6 %	2.4 %	444.5 %
Lebanon	3,925,502	300,000	950,000	24.2 %	2.8 %	216.7 %
Oman	3,204,897	90,000	319,200	10.0 %	1.0 %	254.7 %
Palestine(West Bk.)	2,535,927	35,000	266,000	10.5 %	0.8 %	660.0 %
Qatar	907,229	30,000	289,900	32.0 %	0.9 %	866.3 %
Saudi Arabia	27,601,038	200,000	4,700,000	17.0 %	14.0 %	2,250.0 %
Syria	19,314,747	30,000	1,500,000	7.8 %	4.5 %	4,900.0 %
United Arab Emirates	4,444,011	735,000	1,708,500	38.4 %	5.1 %	132.4 %
Yemen	22,230,531	15,000	270,000	1.2 %	0.8 %	1,700.0 %
TOTAL Middle East	192,755,045	3,284,800	33,510,500	17.4 %	100.0 %	920.2 %

Source: OECD

By encouraging Digital Arabic Content through incubators, we are encouraging the development of content in the Arabic language targeting citizens and individuals in the region especially those who does not speak other languages. By promoting DAC we wish to increase the penetration rate of ICT in the Arab region and to develop the local communities as well as to improve the business sector.

The market of the DAC applications is basically the Arab World at large which is relatively an important market. Promoting DAC Industry will help creating jobs for young entrepreneurs; creating start-ups and SMEs, thus improving the whole ICT sector.
The target audience for DAC is:

- Arabic speakers who are more comfortable in the Arabic language
- Arabic citizens who wants to access Arabic applications (government, learning, culture, …)
- Diaspora: persons of Arabic origin interested in Arabic culture and information about the Arab world
- International community, interested in Arabic culture and information about the Arab world

The international market is important too and could be a target to DAC.
Several points should be taken into consideration when speaking about Arabic E-Content:

- Most of the Arab countries have substantial Diasporas living all over the world, such communities are an important target for DAC.

- Most of the Internet and Multimedia users in the Arab world are quite educated, which makes access to multilingual content easy for them. By promoting DAC we are opening up the access to information for the Arabic speaking communities who didn't have until now the opportunity to access this kind of information.

- With the higher availability of Internet access (over 900% increase in the Middle-East from 2000 to 2007) new concepts of Information dissemination are being noticed. The traditional "broadcast" concept, consisting of distributing general purpose information to a very large number of people in a restricted geographical area, is now replaced by the concept of "narrowcast" consisting of distributing very specialized information to a restricted number of people in a very large geographical area. This approach has the benefit to target people with higher interest in our product

and greater awareness of our offering which leads to an easier sale and a higher profit (Supply and demand principle).

- All players in this area are looking to have a share of the global market. It makes no business sense to conceive E-Content production facilities for the local market in any Arabic country no matter how big it is. All the efforts of E-Content producers should be concentrated on finding the right *product* that will make its way to the whole Arabic space.

E-Content incubators landscape

The incubator major objective is to help young entrepreneurs develop an idea and transform it into a sustainable business. It is crucial for an incubator to have a process and focused methodology to detect and attract young talent. This is achievable through scouting and competition, and is not in the scope of our discussion.

As entrepreneurs start or expand their business, they often need advice on a broad range of topics, including business planning, staffing, finding and working with suppliers, identifying the appropriate location for the business, navigating the regulatory landscape to obtain the necessary licenses, patents, marketing, developing effective business processes, etc. The value of mentoring and coaching the entrepreneur has also increasingly been recognized as one of the key added values provided by business incubators.

Further to the observation of some successful technology incubators, we can easily notice that those organizations run on a very limited number of resources that will ensure the basic support services such as reception, office works, catering, cleaning and so forth.

Strategic and some operational services are mainly provided by third party organizations with deep insight on the subject matters. These third party organizations are usually distinguished players of the local market operating through special contracts with the incubator ensuring a certain amount of work (time charge) at a competitive cost. The presence of volunteer resources (University professors, business leaders, technology experts …) is also a major asset for the incubator. It is crucial to allocate one or more resources from within the incubator staff to manage the relationship with the volunteer community.

Sample Resources from World Wide, EU tentative list

The technology incubators are numerous around the world. But very few are specialized in E-Content development. The most spectacular support for the young entrepreneurs in the digital content creation is the one lead by the European Union who has launched several initiatives to help developing content in its member countries like the famous "E-Content program" that was initiated in 2000 with a budget of 100 million euros (www.cordis.lu/content). Other European projects and initiatives destined to promote the development of digital content, can also be mentioned see **Appendix 1**.

The World Bank through its InfoDev initiative has helped developing a network of incubators (around 140) in various countries all over the planet. In this section, we have listed a short selection from the InfoDev incubators community present in some Arab countries.

- Al Akhawayn University Incubator - Morocco
- Casablanca Technology Park - Morocco
- Libyan Incubator for Technology and Innovation - ELITE - Libyan Arab Jamahiriya
- ICT Incubator - Syrian Computer Society - Syrian Arab Republic
- ICT Incubator -Islamic University of Gaza - West Bank/Gaza
- National Consortium for Technology and Business Incubation - iPark - Jordan
- Elgazala Park of Communication Technologies -Tunisia

- Qatar Science and Technology Park - Qatar
- The Palestine Information and Communications Technology Incubator - West Bank/Gaza

Another list of incubators can be found in **Appendix 1**.

Characteristics of Incubator action: Services rendered

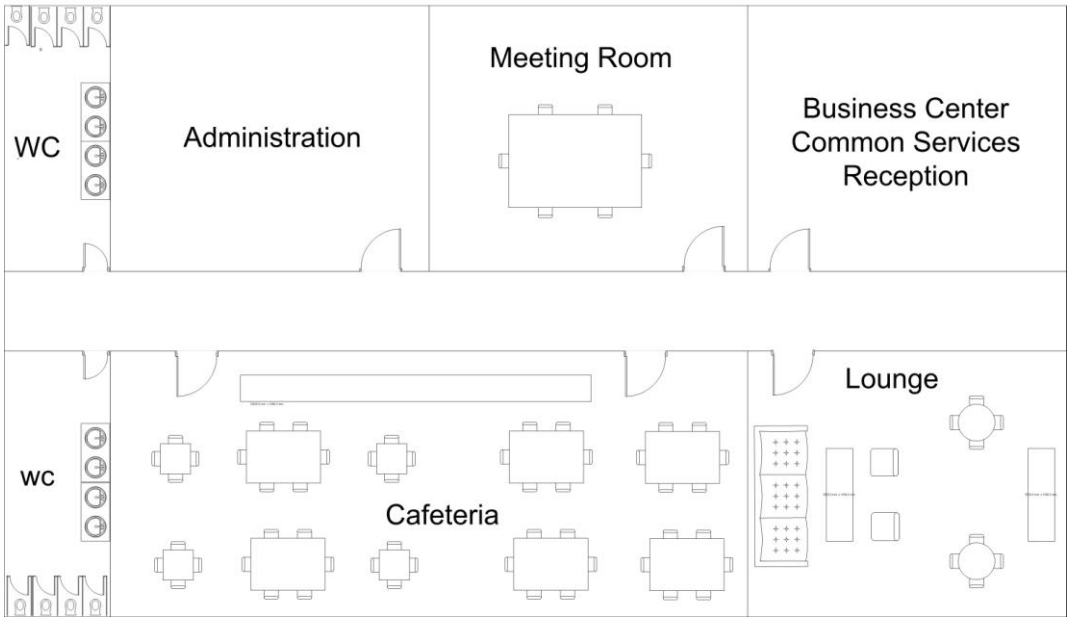
Incubators operate under many different models they have proven to be an effective way for fostering sustainable business growth and stimulating entrepreneurship. But establishing a business incubator is a challenging task, its success resides in its ability to provide high caliber and timely support through the provision of services to its incubated firms. The main line services to be provided are:

Office Space Facilities
A user friendly environment to enable startup companies to accelerate their development. Each member company should have a dedicated office within the Incubator's environment, as well as shared office facilities.

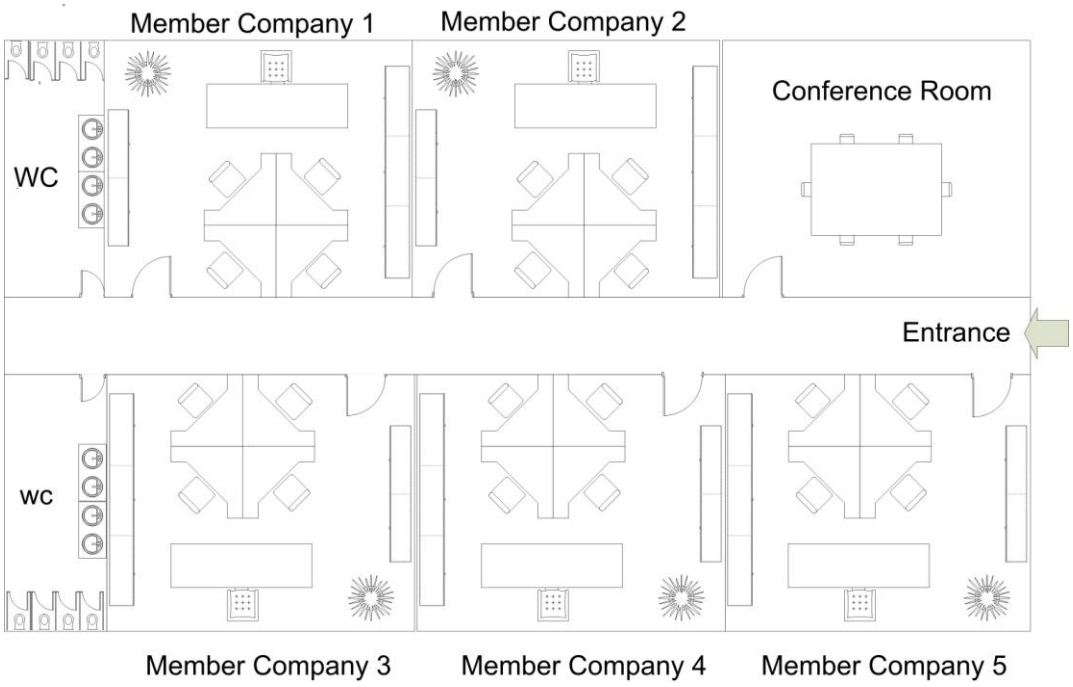
Office Services Facilities
Office facilities will typically include:

- Equipment: including networked computers, printers, telephones, as well as an air conditioning and heating system. Common business applications such as word processing, spreadsheets, and presentation software will also be available.
- Furniture: carpeting, desks, chairs, cabinets, etc

Incubator: Sample Floor 1



Incubator: Sample Floor 2



Shared Facilities
Shared office facilities include:

- Shared equipment: wired and wireless internet access, copier, fax machine, printers, scanners, data show projector, infrastructure servers, UPS system, and telephone exchange system.
- Shared business services include reception and telephone answering services, mail handling, and conference room services.
- Video conferencing, auditoriums, research library (business and technical publications and books, as well as reference materials), catering services, sports facilities, etc...

Strategic and Operational Support Services
The incubator vocation is to provide support services to its member companies (incubatees) directly through its own staff (minimal) but mainly through the establishment of partnerships with networks of operational services providers (marketing, auditing, legal, technical …).

A network of advisors with a proven track record in supporting start-ups should be available.
The involvement of a business advisor, assigned to incubatees to assist and guide them through the development of their business is a great plus.

The strategic services are meant to develop the business aspect of the incubatees and enable them to complement their core competencies with hard to secure expertise, contacts, and resources.

The spectrum of strategic support services that may be provided include:

- Management team support, mentoring and coaching
- Content relevance and harmonization
- Quality standards, ergonomics and usability
- Strategic planning, Competitive analysis, Focus groups, orientation and market positioning
- Organizational structure
- Business plans and feasibility studies support
- Partners and outsourcing relationships

- Fund raising, Venture Capital, Mergers & Acquisitions

The spectrum of Operational support services that may be provided include:

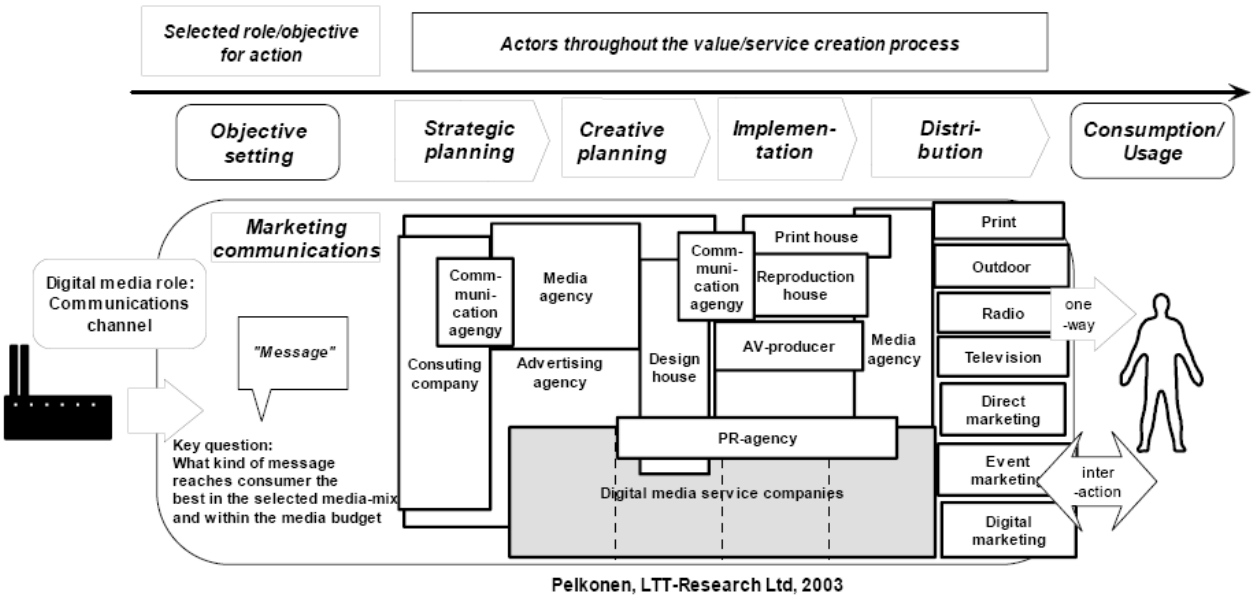
- Branding, Packaging, Marketing, Advertising and Sales Channels
- Accounting, procurement, auditing, financial issues and Banks relationships
- Press and Public relations
- Market research
- HR and recruitment assistance
- Legal services
- Insurance
- Technical assistance
- Training and Capacity building

Development Cycle - Production Cycle
The main objective for a company operating in the digital content industry is to create substantial benefit for its clients with the help of new technologies, e.g. Internet technologies. The benefits are created by:

1. Adding more efficiency into company organization and working processes;
2. Creating additional sales/revenues and/or
3. Increasing corporate brand recognition.

These three activities can be seen as having a similar four-stage value creation process.

The four stages in the process are: strategic planning; creative planning; implementation, and distribution of the actual service/production.



In addition, and in order to provide added value to their customers, digital content companies create "content products", which are sold either via an intermediary or directly to consumers. This content production process has a special value creation model. It is illustrated in content creation business has been analyzed thoroughly in multiple studies and is not the core focus of our discussion.

In the evolving field of digital communication, it is more common to discuss a specific technology solution or delivery platform than to really understand the relations of this solution/platform to other similar activities.

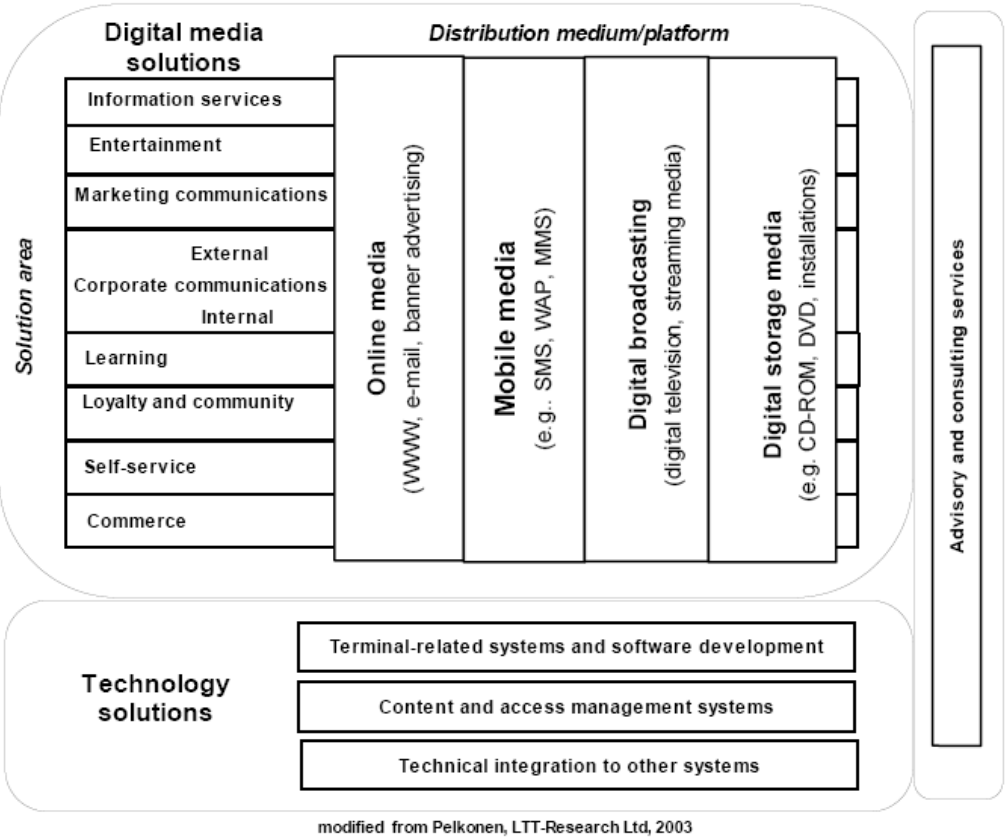
In this report, a two-fold matrix is used to assist in defining digital media industry activities within its production cycle:

On the horizontal axis are the **four delivery platforms**

- ✓ Online
- ✓ Mobile
- ✓ Digital broadcasting
- ✓ Digital storage media

On the vertical axis are **eight solution areas**

- ✓ Information services
- ✓ Entertainment
- ✓ Marketing communications
- ✓ Corporate communications
- ✓ Learning
- ✓ Loyalty and Community
- ✓ Self-Service
- ✓ Commerce



modified from Pelkonen, LTT-Research Ltd, 2003

Focus Groups

Digital content is like any knowledge product, subject to the acceptance of the end-user being it a personal consumer or a business consumer. The large number of participants in the development cycle, might cause

the product to drift away from its original target. It is of an utmost importance to assess the positioning of the digital content product at all levels of its production. Consumer focus groups, created by the incubator, will be responsible of reflecting their understanding and perception to the producers.

A **focus group** is a form of qualitative research in which a group of people are asked about their attitude towards a product, service, concept, advertisement, idea, or packaging. Questions are asked in an interactive group setting where participants are free to talk with other group members. This will help the production, marketing and sales teams update their strategies and tactics and take the proper directions.

Opportunity of E-Content incubators

Overview on various categories of E-Content

It is commonly recognized to divide E-Content into 8 large categories aligned with the traditional content categorization. Some of these categories are in our opinion more important than others as far as digital Arabic content is concerned and are worth attracting the large part of the investments due to the special characteristics of the Arab world, the availability of content, its relevance and the capacity of Arabs to create a product out of it. These categories are:

e-Learning: Serving the needs of learners to acquire knowledge and skills for a complex and globalizing world; transforming schools, universities and other educational institutions through interactive, personalized and distributed learning resources; creating active e-learning communities and target models and solutions for corporate training, supporting highly demanding multimedia environments.

e-Culture: Preserving and presenting cultural heritage in line with the challenges of the future; demonstrating valuable cultural assets clearly and informatively using state-of-the-art technology.

e-Media: Supplying digitized media products and services; providing printed or audiovisual material for news, entertainment, education and advertising while valuing the synergy between analog and digital platforms.

e-Government: Empowering citizens and serving public services clients; fostering quality and efficiency of information exchange and communication services in governmental and public administrative processes; strengthening participation of citizens in information society decision making.

e-Health: Developing the consumer-centered model of health care where stakeholders collaborate, utilizing technology, including internet technologies to manage health issues as well as the health care system.

e-Business: Support and optimization of business processes; creation of new business models in e-commerce and m-commerce, business to business, business to consumers, internet security and other areas; supporting SME’s on the marketplace.

e-Entertainment: Supplying digitized entertainment products and services; entertaining the user in this world's variety of languages and its cultural diversity; supporting movement from one-way to two-way, from single to multiple players, interactive entertainment and the synergy between analog and digital platforms.

e-Inclusion: All measures supporting technology integration of least developed communities into the Information Society. Reducing the "digital divide" and “content gap” between technology-empowered and technology-excluded groups - such as rural areas and women. Bridging society through multimedia and interactivity.

Relation between Technology and Content

Contents and their quality are difficult to judge, more than technology. In the case of technology, the parameters are clear and objective; the performance of chips can be measured in Hertz, the throughput of networks in bits per second, and the storage capacity of disks in bytes. Such simple parameters do not exist for the quality of content. Yet, quality needs to be assessed: users need to know what they get or buy, clients need to order according to certain standards, producers and designers need to have best practice models and quality comparisons.

Over the last 50 years, Information and Communication Technologies have become exponentially more powerful and radically cheaper and smaller. E-Content does not keep up with technology in terms of speed of development, economies of scale and simplicity of consumption. This results in a dynamic structural gap. This gap widens as we move into the Information Society.

The content gap is not just one of technological versus human capacity. The nature of economic and social structures and general awareness are also important determinants. There is an imbalance of pay and an inequity of investment. Post-industrial societies spend enormous sums of money on equipment, gadgets and 'tech things'. They invest far less in quality stories, knowledge and insight.

Content industries are local and regional, technologies are global
In the context of the global economy, it is the content industries which offer the opportunity for local and regional economic development. Basic software, hardware and netware have become global industries with a high degree of global concentration.

Contents are tied to culture and language. They are largely local and regional. Most creative producers – save the ones working for the Hollywood industries and in English – have culturally restricted audiences and markets. This gives countries opportunities to develop economically.

Focus topics and applications for the development of Digital Content

Information services: these services aim to provide media-content-like services their target groups.
Example. news, financial, sport etc. *Key focus area*: INFORMATION & CONTENT

Entertainment solutions: these services target to provide the feeling of enjoyment, entertainment and fun to their users.
Examples: games, music, videos. *Key focus area*: FUN AND EXPERIENCE

Marketing communications solutions: these services target to strengthen the brand recognition and experience among their consumers. When linked to traditional marketing campaigns they provide additional information of the products, brand and the manufactures.
Examples: online campaign site, e-mail marketing campaign. *Key focus area*: MARKETING

Corporate communications solutions: these services target to provide rather objective information of the service providers. The area can be divided into two segments: external and internal communications. *Examples*: financial information service, company intranet. *Key focus area*: INFORMATION DISTRIBUTION

Learning solutions: these services facilitate the training, learning and teaching processes of their providers and end-users. The objective of a learning solution can be e.g. to communicate a totally new topic to the personnel of the company and test the level knowledge status after the communication. *Examples*: online learning environments; simulation software for machinery and airplanes. *Key focus area*: LEARNING

Loyalty and community solutions: these solutions strengthen the stickiness of the owners of a product for the manufacturer. The owners can be guided to communicate with each other or with the manufacturer. In addition, the product experience and offering can be expanded with the online offering for the product. *Examples*: loyal customer clubs; registration-based online communities, user generated content. *Key focus area*: CUSTOMER LOYALTY

Self-service solutions: these solutions aim to guide the consumers/end-users to help themselves. The solutions target to provide solvers and answers to the most typical questions related to the products. *Examples:* downloading software updates; support areas, online tutorials, expert forums. *Key focus area*: SUPPORT

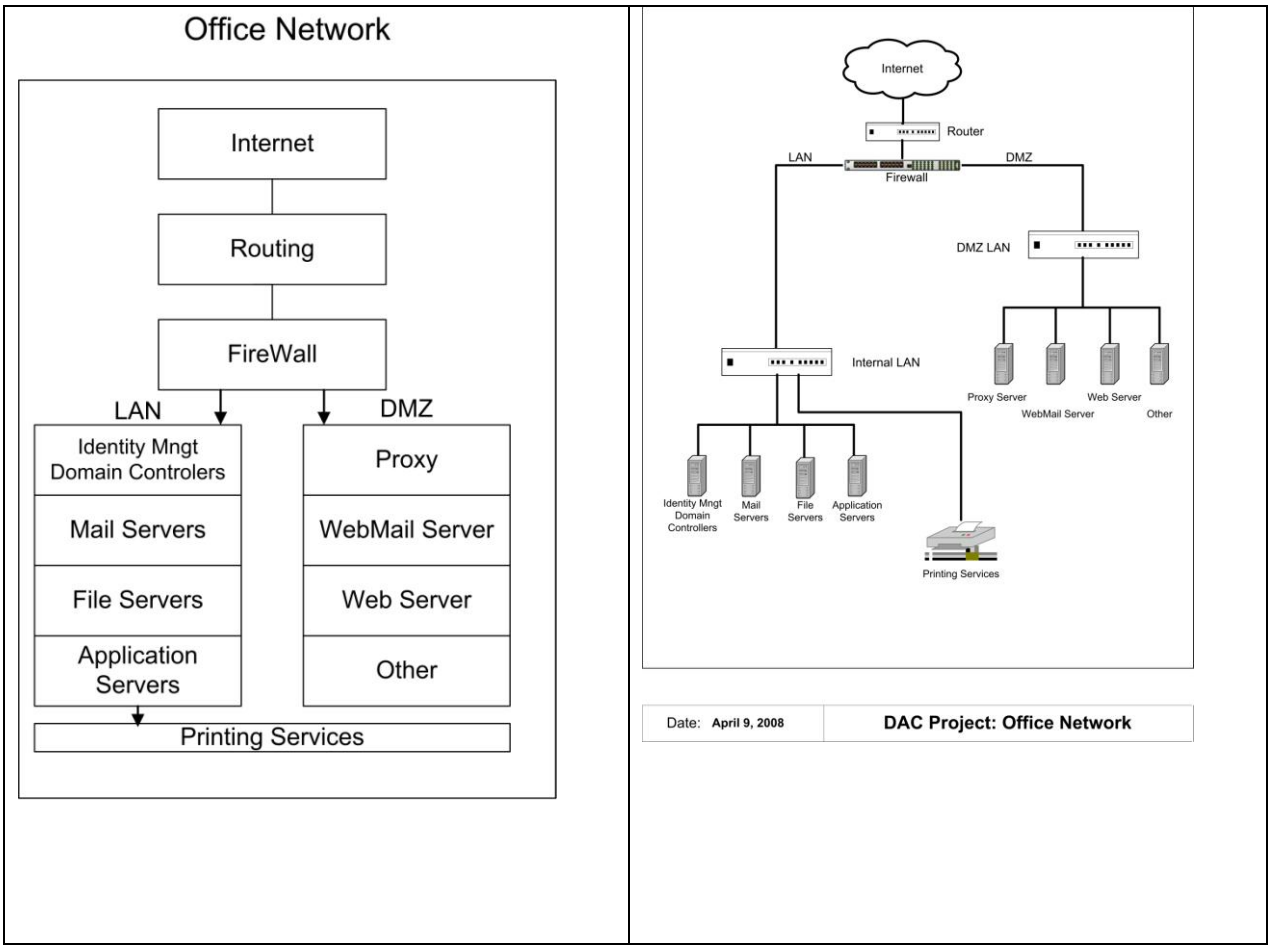
Business solutions: these solutions aim to function as a sales channel of products/services to the end-users. The transaction is performed within the solution and the good is transmitted at the exchange of the ownership of the good. *Examples*: online shops, banking, business-to-business exchanges. *Key focus area*: SALES, TRANSACTIONS.

Infrastructure Needed

Basic Hardware, Software, Network and Connectivity required at Incubators
As part of its general objectives, the incubator will provide centralized IT and Communication services as well as basic office services (fax, photocopy, binding secretariat, …). Basic services are mainly: Internet connectivity (around 2Mbps per member company), secured LAN (with a subnet for each member company), a mail server (with web mail capabilities) a proxy server, an Identity management/Domain controller server, a File server (with redundancy and automated backup), Scanning and Printing facilities.
A wide variety of hardware vendors is available. It is only recommended to choose those who have serious local support that will ensure the proper SLA as per the next paragraph.

Software for mail, proxy, identity management, backup, scanning etc … is also available from various vendors (Microsoft, SUN-JES, IBM-Tivoli, HP, Symantec-Veritas, CA, …) including open-source software. It is recommended to choose a consistent set of applications that will ensure compatibility and security. IT personnel should be properly trained to install and administer the above (see the Training Section).

A sample installation for the common basic IT infrastructure would be:



Specific needs for demanding Applications

The incubator shall be able to provide consultancy and support for member companies that operates demanding Applications, such as Gaming and Multimedia, High Performance Computing (HPC) and Grid based environments, eLearning platforms, eGovernment and other eBusiness environments.

Basic components for such applications that we might find in several configurations are:

- ✓ Internet connectivity (around 2Mbps per Member Company)
- ✓ Secured LAN (with a subnet for each member company)
- ✓ Identity management/Domain controller server
- ✓ Storage and storage management
- ✓ HPC-Grid computing
- ✓ Middleware – Message Brokers
- ✓ Application Servers
- ✓ Portals
- ✓ Business Choreographers
- ✓ Encryption-Public Key Infrastructures (PKI)
- ✓ Encoders-Encryptors
- ✓ Non-Linear Editors (NLE)
- ✓ Streaming Servers
- ✓ Rendering Farms
- ✓ Authoring Stations

A description of each of those components can be found in **Appendix 2**.

A variety of hardware and software vendors (including Open-Source) is available to provide some or all the components of such applications. Nevertheless, it is only recommended to choose those who have certified expertise and local support that will ensure the proper SLA.
It is recommended to choose a consistent set of applications that will ensure compatibility and security. IT personnel should be properly trained to install and administer the below (see the Training Section).

We propose in the following paragraphs a sample infrastructure for some demanding applications with some basic components:

eLearning
E-learning is used interchangeably in so many contexts. In companies it is referred to the strategies that use the company network to deliver training courses to employees. In distance education, it is defined as a planned teaching/learning experience that uses a wide spectrum of technologies mainly Internet to reach learners at a distance. Lately in most Universities, e-learning is used to define a specific mode to attend a course or programmes of study where the students rarely, if ever, attend face-to-face or for on-campus access to educational facilities, because they study on-line.In many respects, it is commonly associated with the field of advanced learning technology (ALT), which deals with both the technologies and associated methodologies in learning using networked and/or multimedia technologies. It is worth mentioning that eLearning development platforms should mainly comply the SCORM standard that will allow interoperability of eLearning content across different platforms.

The worldwide e-learning industry is estimated to be worth over 83 billion dollars according to conservative estimates, it supposed to grow to some amazing figures as shown in the following table:

Sector	2002	2006	2011
K-12 Academic	1.8	11.0	18.0
Higher Education	1.5	23.0	44.0
Recruiting and Staffing	0.8	4.6	11.7
Corporations and Business	4.6	16.4	42.6
Government	0.6	2.7	13.4
E-Learning Simulation	0.3	6.1	37.0
Vocational	0.4	8.6	19.2
Consumer	0.2	7.3	16.0
Associations	0.1	3.4	11.0
Totals	**10.3**	**83.1**	**212.9**

Comparative Estimates: Worldwide Corporate E-Leaming Revenues, 2000-2010 (in US$ billions)
(*Source*: Emarketer)

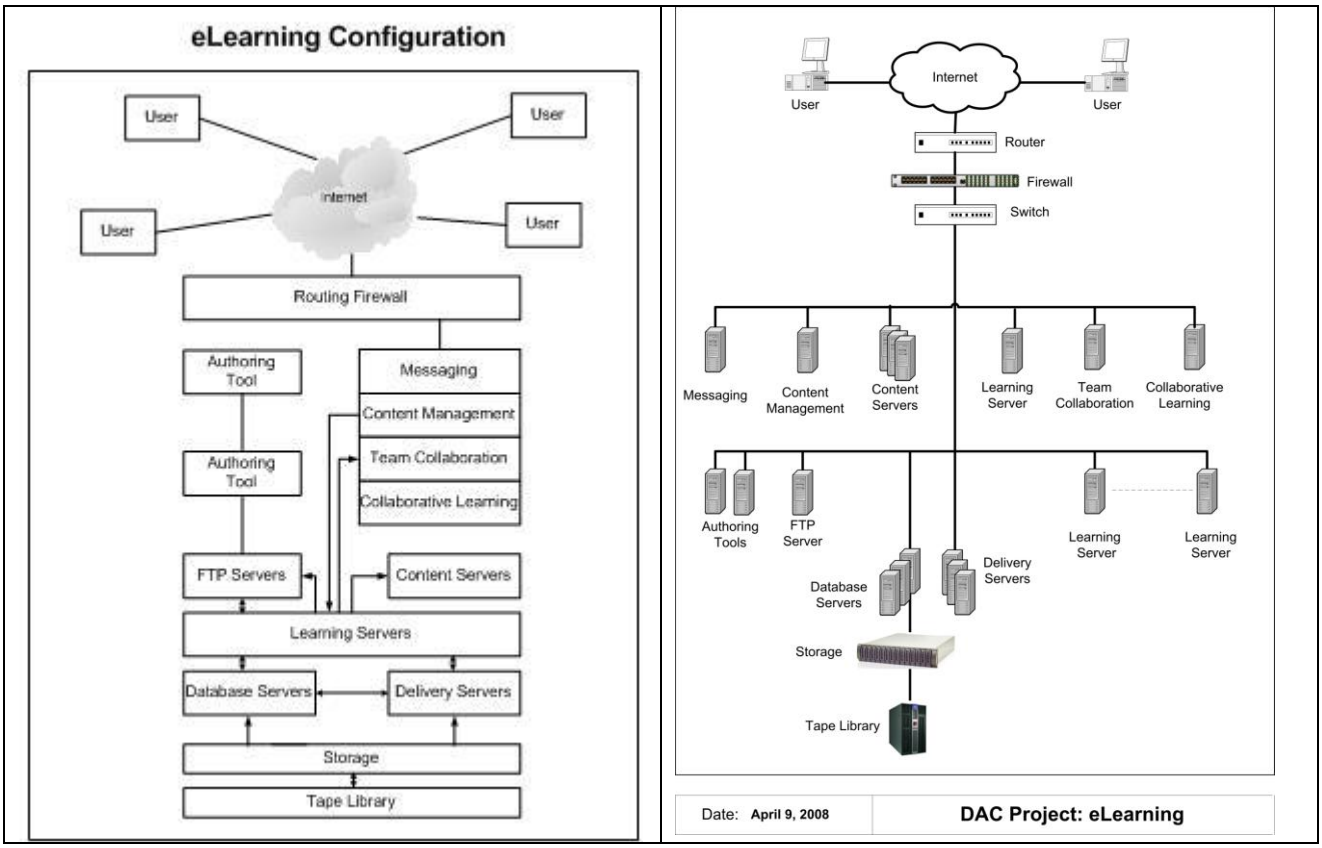
Hereafter some eLearning products available worldwide:

Open source
Open-source Virtual Learning Environments (VLE)
- ATutor
- Claroline
- Dokeos
- eFront
- ILIAS
- KEWL
- LON-CAPA
- Moodle
- OLAT

- Sakai Project

Proprietary

- Lectora by Trivantis
- Content Point collaborative e-learning platform
- D2L eLearning Enterprise
- Elluminate
- ANGEL Learning
- Authorware (Macintosh)
- Blackboard (Microsoft)
- Captivate
- Acrobat Connect (formerly Macromedia Breeze)
- Brihaspati
- Tooling University
- FirstClass
- Knowledge Forum
- WebCT
- WebEx
- Xmind
- TutorVista



Gaming, Multimedia and graphics
The three largest producers of and markets for computer and video games (in order) are North America (US and Canada), Japan and the United Kingdom. Other significant markets include Australia, Spain, Germany, South Korea, Mexico, France and Italy.

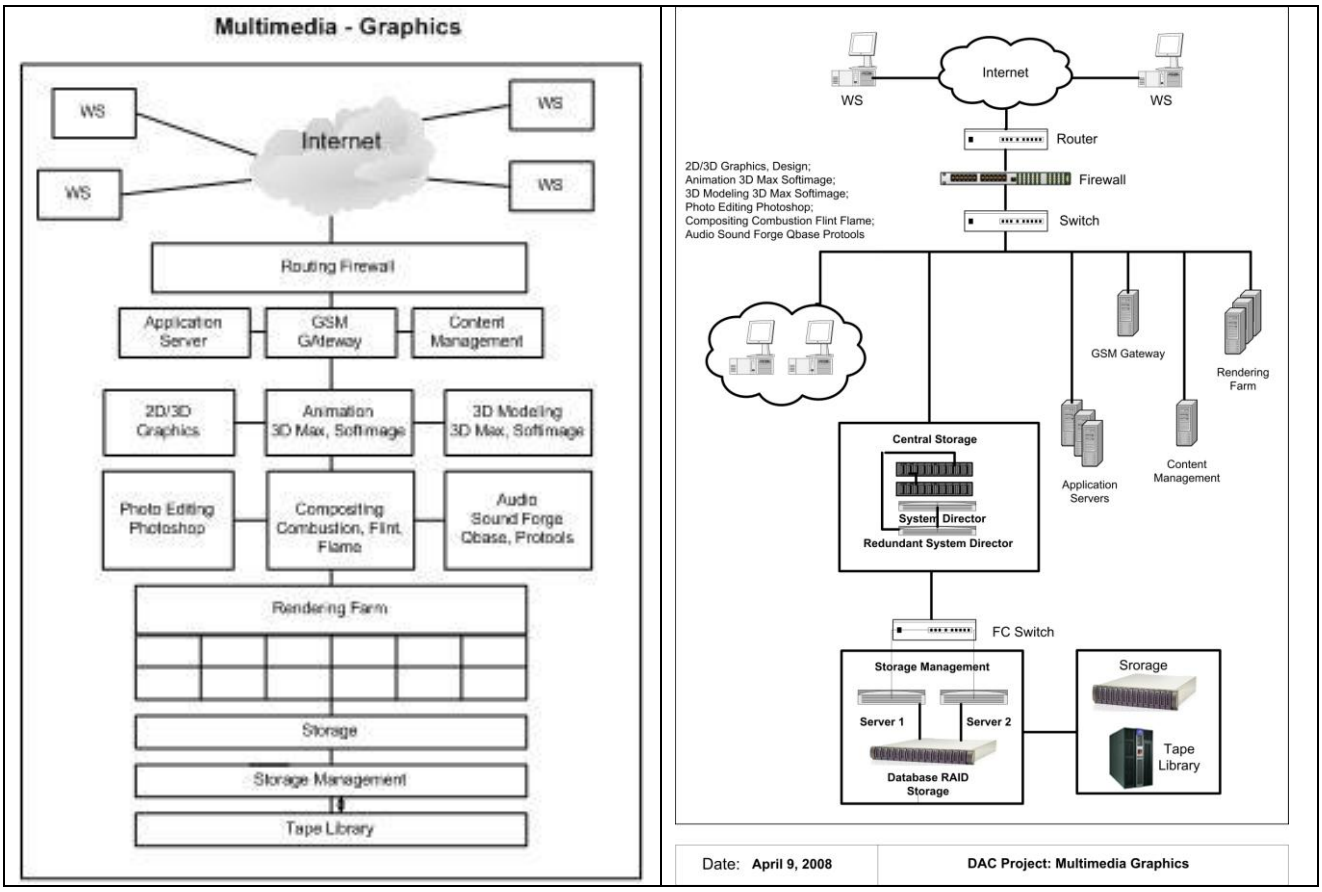
- Console and portable software sales: $6.2 billion, up 8% from 2003
- Console and portable hardware and accessory sales: $3.7 billion, down 35% from 2003
- PC game sales: $1.1 billion, down 15% from 2006

(source NPD group)

With the release of the Next-Gen Consoles in 2006, these numbers have increased dramatically. The game and film industries are also becoming increasingly intertwined, with companies like Sony having significant stakes in both. A large number of summer blockbuster films spawn a companion game, often launching at the same time to share the marketing costs.

In common usage a "PC game" is a program involving a player interacting with a personal computer connected to a high-resolution video monitor. A "console game" is played on a specialized electronic device that connects to a standard television set or composite video monitor. A "handheld" gaming device is a self contained electronic device that is portable and can be held in a user's hands. "Arcade game" generally refers to a game played on an even more specialized type of electronic device that is typically designed to play only one game and is encased in a special cabinet. There may be games that bridge one or more platforms. There are also platforms that have non video game variations such as in the case of electro-mechanically based arcade machines. There are also devices with screens which have the ability to play games but are not dedicated video game machines. Examples are mobile phones, PDAs, graphing calculators, GPS receivers, MP3 players, digital cameras and watches.

Whatever the final media support of the game is, the development of a game needs high 2D/3D graphical design and animation skills. Equipment needed is highly demanding in terms of graphics and rendering capabilities. Hereafter a sample configuration for Gaming/Multimedia development infrastructure.

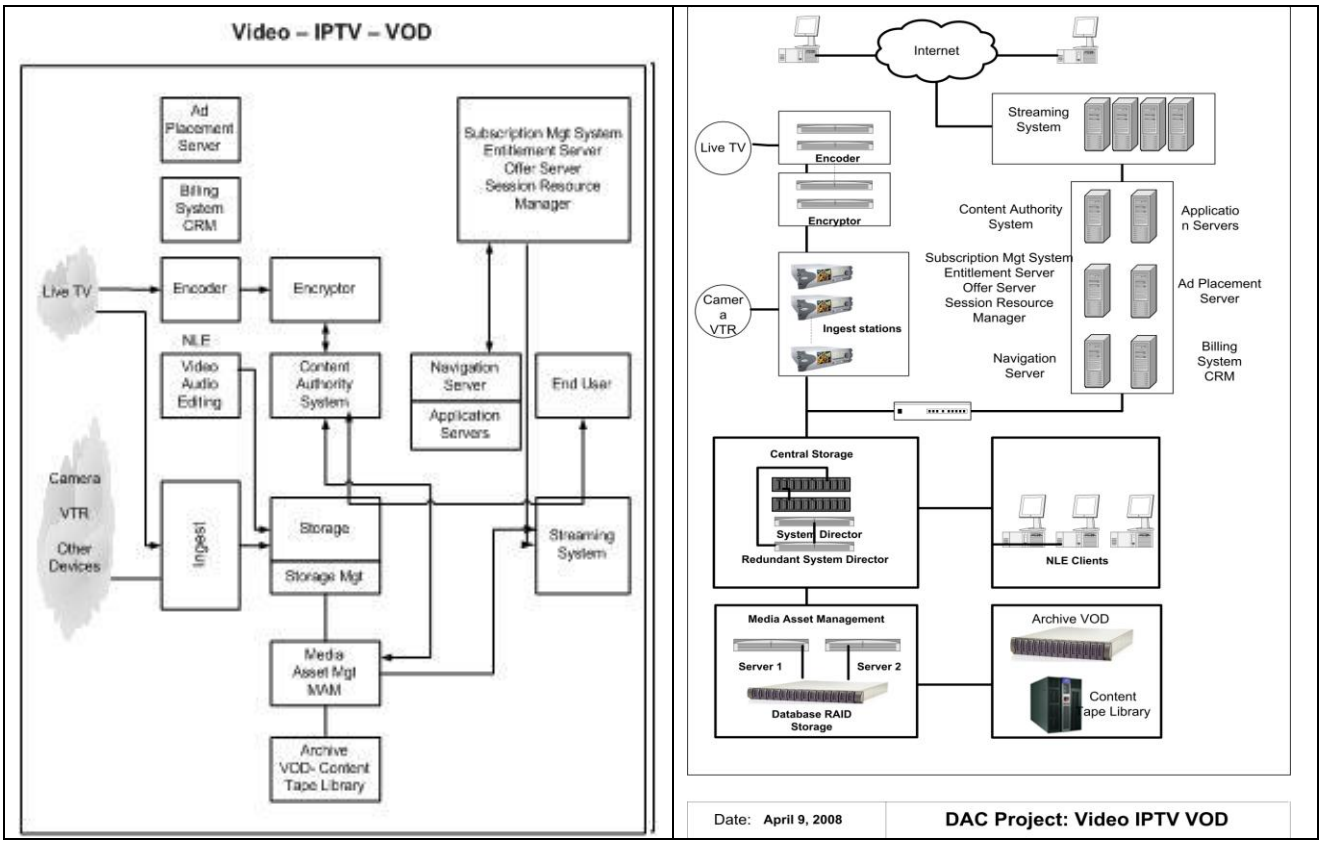


Video, IPTV, Video On Demand (VOD)

Deploying IPTV effectively requires video services infrastructure that can rise to the challenge. To succeed, effective IPTV infrastructure needs:

- Multidimensional scalability — Video services solutions must not only provide a seamless service, but need to scale dynamically to meet growing demands.
- Consolidated and manageable infrastructure — The inherent limitations of disk-based video servers have caused considerable server sprawl and complexity, excessive numbers of components, and overwhelming management costs.
- Open and standard protocols — Some vendors ship proprietary IPTV solutions that are designed to lock organizations into their product set, arbitrarily limiting innovation.

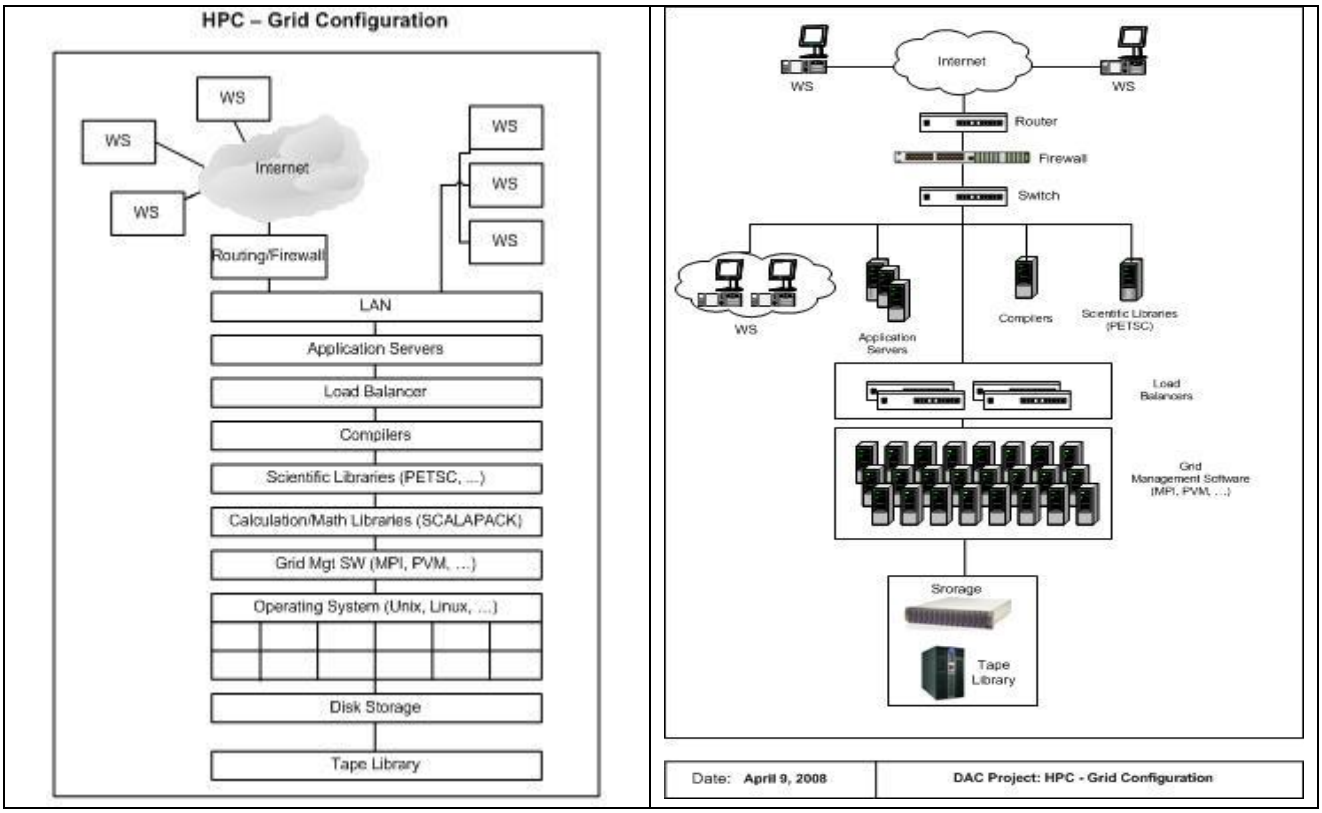
Equipment needed ranges from encoders and encryptors to capture devices using VTRs, Cameras and other, to huge storage systems, to streaming capabilities that take into consideration Digital Rights Management (DRM) (Sony, Microsoft, IBM, Digisoft, …) and Watermarking (Tompson, IBM, …).
Hereafter, a typical configuration that offers end-to-end functionality.



HPC-Grid

The term high performance computing (HPC) refers to the use of (parallel) computers and computer clusters, that is, computing systems made of multiple processors linked together in a single system with commercially available interconnects. This is in contrast to mainframe computers, which are generally monolithic in nature. While a high level of technical skill is needed to assemble and use such systems, they can be created from off-the-shelf components. Because of their flexibility, power, and relatively low cost, HPC systems increasingly dominate the world of supercomputing.

The term is most commonly associated with computing used for scientific research, special treatment of language, speech recognition, OCR, Health applications, Applications for Handicapped, weather, scientific, math, gaming and virtual reality. A related term, High-performance technical computing (HPTC), generally refers to the engineering applications of cluster-based computing (such as computational fluid dynamics and the building and testing of virtual prototypes). Recently, HPC has come to be applied to business uses of cluster-based supercomputers, such as data warehouses, line-of-business (LOB) applications and transaction processing.

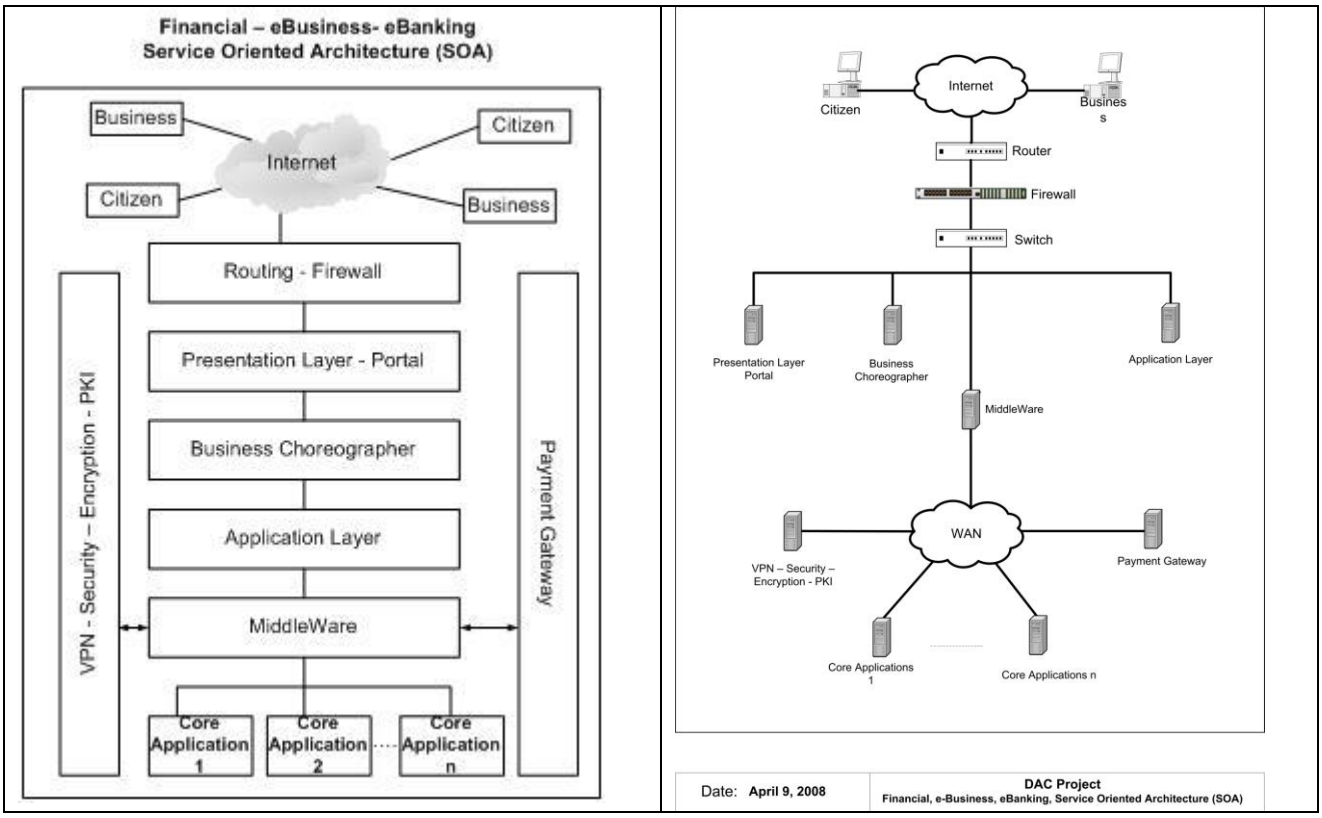


E-Services platforms: Financial eTransactions, eBusiness

Electronic Business (including eCommerce, eBanking, eServices or eTransaction at large) may be defined broadly as any business process that relies on an automated information system with an online component (Web, mobile, pervasive, …).

E-business involves business processes spanning the entire value chain: electronic purchasing and supply chain management, processing orders electronically, handling customer service, and cooperating with business partners. Special technical standards for e-business facilitate the exchange of data between companies. E-business software solutions allow the integration of intra and inter firm business processes.

E-business can be conducted using the Web, the Internet, intranets, extranets, mobile, pervasive devices or some combination of these.

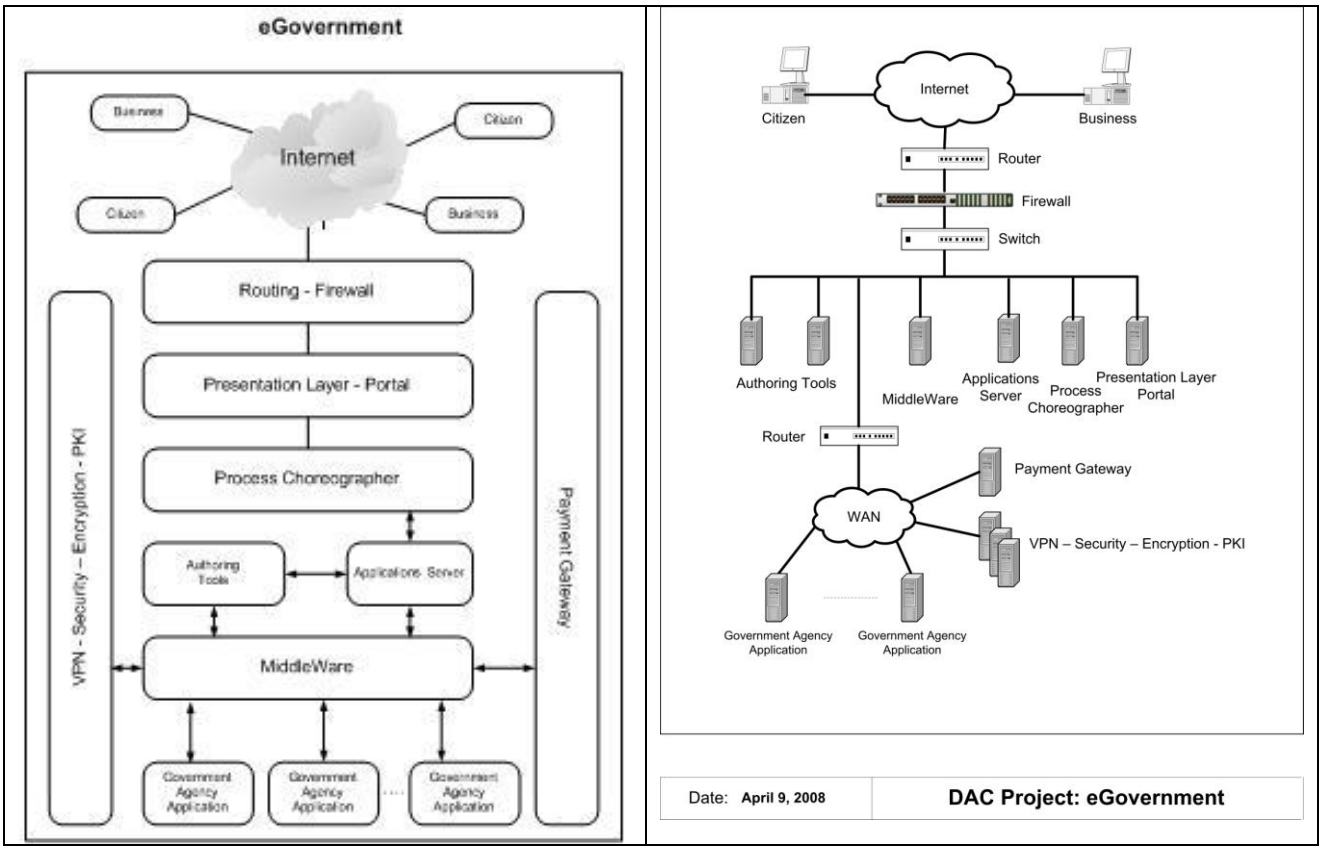


eGovernment

e-Government refers to the use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government. The primary delivery models are Government-to-Citizen or Government-to-Customer (G2C), Government-to-Business (G2B) and Government-to-Government(G2G)&Government-to-Employees(G2E).
Within each of these interaction domains, four kinds of activities take place and might be good opportunities for DAC projects that are still scarce in the Arab world.

- pushing information over the Internet, e.g: regulatory services, general holidays, public hearing schedules, issue briefs, notifications, etc.
- two-way communications between the agency and the citizen, a business, or another government agency. In this model, users can engage in dialogue with agencies and post problems, comments, or requests to the agency.
- conducting transactions, e.g: lodging tax returns, applying for services and grants.
- governance, e.g: online polling, voting, and campaigning.

e-government is often thought of as "online government" or "Internet-based government," many non-Internet "electronic government" technologies can also be used in this context:
Some non-internet forms include telephone, fax, PDA, SMS text messaging, MMS, wireless networks and services, Bluetooth, CCTV, tracking systems, RFID, biometric identification, road traffic management and regulatory enforcement, identity cards, smart cards and other NFC applications; polling station technology (where non-online e-voting is being considered), TV and radio-based delivery of government services, email, online community facilities, newsgroups and electronic mailing lists, online chat, and instant messaging technologies. There are also some technology-specific sub-categories of e-government, such as m-government (mobile government) and g-government (GIS/GPS applications for e-government).



Services, Maintenance and Support

It is highly advised for the incubator to secure a Service Level Agreement (SLA) with its member companies as well as it own Service Providers.

An SLA is an agreement between two the incubator and its member companies and/or third party Service Providers that will secure at all times a certain level of operations for the incubator and its incubates. An SLA should record the common understanding about services, priorities, responsibilities, guarantees, etc. It may specify the levels of availability, serviceability, performance, operation, or other attributes of the service like billing and even penalties in the case of violation of the SLA.

The technical specifications of an SLA are commonly described through either a Service Level Specification (SLS) or a Service Level Objective (SLO).

Service Level Agreements can contain numerous service performance metrics with corresponding service level objectives. Metrics commonly agreed to include:

- **ABA** (Abandon Rate): **Percentage** of calls abandoned while waiting to be answered.
- **ASA** (Average Speed to Answer): Average **time** (usually in seconds) it takes for a call to be answered by the service desk.
- **TSF** (Time Service Factor): **Percentage** of calls answered within a definite timeframe, e.g. 80% in 20 seconds.
- **FCR** (First Call Resolution): **Percentage** of incoming calls that can be resolved without the use of a callback, or without having the caller call back the helpdesk to finish resolving the case.

Uptime **Agreements** are another very common metric, often used for data services such as shared hosting, virtual private servers and dedicated servers. Common agreements include percentage of network uptime, power uptime, amount of scheduled maintenance windows etc.

Many SLAs track to the ITIL specifications when applied to IT services.

SLAs commonly include segments to address: a definition of services; performance measurement; problem management; customer duties; warranties; disaster recovery; termination of agreement.[1]

Outsourcing involves the transfer of responsibility from an organization to a supplier. The management of this new arrangement is through a contract that may include a Service Level Agreement (SLA). The contract may involve financial penalties and the right to terminate if SLAs are consistently missed.

Training

The training that should be provided to the Digital Content developers varies from technical skills to marketing, sales and legal issues. There is a number of International standards that must be followed in order to ensure the compliance of any developed application to the best practices.

It is well known that technology and Digital Content are very much dependent and that proper training is a key element in the success of any development of DAC applications.

We have noticed over the years that the level of know-how in the Arab world concerning some of the needed technologies is quite low in comparison with the American or European level. Therefore, incubators should be able to surround their member companies with the proper training offerings, using local or International training organizations or technology vendors to provide state-of-the-art education in the following fields.

Course summaries are available in Annex III.

Basic IT trainings
IT trainings should focus on the basic and advanced topics in relation with IT fundamentals. Operating Systems, Relational Database Management Systems, Development Frameworks and Service Oriented Architecture are the most important topics in that space.

Operating Systems
Basic Operating System .training should be provided to those incubatees developing software application related to eContent. Unix and Linux are the preferred OS due to their reliability and resilience specially on the server side. Windows is also a must due to its wide availability and ease of use specially on the client side. The proposed courses are:

- Unix User Introduction
- Unix Advanced User
- Linux Professional – System Administration
- Installing and Configuring the Windows Vista Operating System

Relational Databases
All eContent applications nowadays are extensively using Relational Database Management Systems, such as Oracle, SQLServer, MySQL or others. Trainings on such applications can be provided by the vendors or by certified training centers. Basic and advanced knowledge of database management should be acquired such as:

- Installation and configuration
- Create and administer user accounts

- Create and maintain tables
- SQL and stored procedures
- Backup and Recovery
- Monitor, troubleshoot, and maintain the Database
- Recover the database to a previous point in time
- Customize language-dependent behavior of the database

We have suggested the following courses:

- Oracle 10G Database: Workshop
- Oracle 10G Database2 : Workshop II
- Implementing a Microsoft Server 2005 Database

Development Frameworks

Developers are divided between two major development environment depending on their skills and the nature of their applications: Java 2 Enterprise Edition (J2EE) and Microsoft .Net framework. These environments have development guidelines and techniques that should be carefully followed in order to produce world-class applications including object-oriented theory. Trainees will learn to create Graphical User Interfaces (GUIs), emphasizing components, layouts, and graphics.

We have suggested for that purpose the following courses:

- Core Foundations of Microsoft .NET 2.0 Development
- Java Programming Fundamentals
- Java v2 Enterprise Edition

Service Oriented Architecture (SOA)

New concepts such as SOA should be addressed and favored in any modern architecture.
Service Oriented Architecture (SOA) has emerged as the next major architectural style, especially for enterprise applications. The potential benefits of SOA in terms of flexibility, agility, cost, and time to market have been highlighted and most software organizations are planning to or are currently adopting SOA technologies. SOA takes into consideration other technologies such as XML, which should be also addressed.

We have suggested the following course:

- Service Oriented Architecture

Graphics/Design trainings

Graphic design is the process of communicating visually using text and images to present information. It is a critical component of Digital Content Development. Graphic design practice embraces a range of cognitive skills, aesthetics and crafts, including typography, visual arts and page layout. Like other forms of design, graphic design often refers to both the process (designing) by which the communication is created and the products (designs) which are generated.

Color/Photo handling

Any designer, animator or even simple web developer will ultimately need to edit images and photos and handle color manipulation. The most popular Photo editing tool is by far Adobe Photoshop which became over the years a necessary software program for any person whishing to handle and retouch photos.
We have suggested the following extensive Photoshop training:

- ADOBE Photoshop - Level 1

2D/3D Modeling - 2D/3D Animation

2D and 3D modeling are an integral part of graphical design. Designing characters, logos, scenes, applying colors and special effects to them, importing and exporting graphics to the web, manipulating body types, creating complex illustrations and applying live paint, are skills that any designer/ modeler should acquire. Furthermore animators must be proficient with the concepts of movement, texture, lighting and interaction. For that purpose we have suggested too basic trainings on the most popular products used in the market:

- aDOBE Illustrator
- AUTODESK 3D Studio Max

Other products such as Maya and SoftImage XSI, Combustion, Flint, Flame etc.. might be also considered for high-end applications.

Desktop Publishing

In this section principles of typography, page layout, wrapping objects, graphic frames, nested styles, compounds, shadows and transparency are presented to graphic designers as well as web designers.
We are suggesting the following flagship product from Adobe:

- ADOBE InDesign

Products such as QuarkXpress or others can be also considered.

Web Design

Web design can be a real tricky thing. The problem is that people don't use the same browser, or video card, or screen settings, or even the same kind of computer. Therefore Web applications must take into consideration all the constraints that will make a change in terms of usability, attractiveness and performance.

A clear understanding of the HTML language is important as well as the mastery of a performing Web design tool. We suggest the following product from Adobe:

- ADOBE Dreamweaver MX 2004

Other products are also available from Microsoft, Borland etc …

eLearning design standards

Sharable Content Object Reference Model (SCORM) is a collection of standards and specifications for web-based e-learning. It defines communications between client side content and a host system called the run-time environment (commonly a function of a learning management system). SCORM also defines how content may be packaged into a transferable ZIP file.

We suggest the following training on the principles of the SCORM standard:

- SCORM Development

Other trainings on the eLearning Platforms such as Blackboard, WebCT, Moodle, IBM LMS, … can also be envisaged.

Video over IP networks training

The need for young DAC developers to understand new ways of delivering video is crucial as several eContent disciplines (eLearning, eEntertainment, eHealth, eScience, …) will need such technologies.

IP Television is a system where a digital television service is delivered using Internet Protocol over a network infrastructure, which may include delivery by a broadband connection.

For residential users, IPTV is often provided in conjunction with Video on Demand and may be bundled with Internet services such as Web access and VoIP.

In businesses, IPTV may be used to deliver television content over corporate LANs. Digital Rights Management are a key component of the delivery of TV and Video material over IP networks:

- IPTV and Digital Rights Management

Languages training

As DAC market is primarily addressed to Arabs but also to diasporas all over the world, it is crucial for incubatees to develop their writing skills in Arabic and in those languages popular among the Diaspora. Arabic must constitute the main stream languages used to develop the digital content. We have suggested the following training for the good mastery of business writing:

- Business Writing

Application Usability training

Usability, defined as "the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments" (ISO 9241) has to be a key part of any strategy dealing with websites, mobile applications, online gaming and digital content at large. Successful eContent ventures need both a philosophy and a management system that rather place the user and his needs in the centre than the engineer or the designer.

- Web Usability By Design

Business trainings

Multiple business and management trainings are required to develop the skills of young incubatees who tend to be more technically oriented. Those trainings range from brand recognition and management to marketing and sales. Additional Accounting, Finance and Casflow Management are also required to help implement good governance among member companies.

Business Plan writing techniques will be essential at a certain stage specially for capital raising.

Brand Management

This training is addressed to General Managers, Marketing Managers and Sales persons at large. It will focus on the following topics:

- Foundations to branding
- The Brand Manager
- Understanding the Customer insights
- Building a Brand With a Personality
- Developing a Brand Positioning Strategy
- Planning Brand Strategy
- Brand Extensions

Ref: 24- Brand Management

Selling Skills
This training is addressed to the Sales team it will focus on:

- The roles & responsibilities of the sales person
- Prospecting
- Working with customers
- The sales presentation
- Closing the sale
- Handling objections
- Communication skills in the sales process

Ref: 27- Sales and distribution

Human Resources
This training is addressed to the General Manager and the HR Manager it will focus on the following:

- Understanding the HRM environment
- Developing the HR Plan 5 steps procedure
- The Recruitment & Selection Process
- Defining, Describing & Analyzing jobs
- Human Resource Planning & Succession Planning
- Human Resources Development
- Compensation & Incentives

Ref: 28- Human Resources Training

Marketing Essentials
This training is addressed to the General Manager and the Marketing Manager it will focus on the following:

- The Marketing Concept
- Corporate Position
- The Marketing Mix: Product, Price, Promotion and Place
- Market analysis & planning methodologies
- Building a marketing plan
- Segmentation & Positioning
- Overview of Marketing Research
- Overview of Marketing - International
- Overview of CRM - Customer Relationship Management

Ref: 26- Marketing

Accounting and Finance
This training is addressed to the General Manager in order to give him some basic accounting knowledge, it will focus on the following:

- Chart of Accounts
- Accounts Payables
- Accounts Receivables
- Cash and Bank
- Trial Balance
- Income Statement
- Profit and Loss Statement
- Balance Sheet

Business Plan writing

This training is addressed to the General Manager, Marketing Manager and Sales Manager; it will focus on the following:

- Setting objectives including a vision statement if relevant
- Marketing plan
- Production and logistics plan
- Administration plan
- Manpower planning
- Contingency planning
- Finance plan including budgeting
- Cash flow planning
- Funding options
- Source and applications of funds
- Action planning and implementation through project management and management by objectives

Legal trainings

Incubatees will have to handle some legal issues with the help of lawyers (supposedly provided by the incubator). Nevertheless basic legal elements such as incorporation options, labor laws, taxation laws and Intellectual property laws should be provided on conference or seminar basis.

- Incorporation,
- Labor Law
- Taxation
- IPR law

You may find herewith a table showing the required training for each Digital Content Topic and a sample list of course outlines.

Digital Content Topics **Training Topics**	**Information services**	**Entertainment solutions**	**Marketing communications solutions**	**Corporate communications solutions**	**Learning solutions**	**Loyalty and community solutions**	**Self-service solutions**	**Business solutions**
Basic IT trainings								**X**
• Operating Systems	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
• Relational DB	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
• Development Frameworks		**X**	**X**	**X**	**X**	**X**	**X**	**X**
• Service Oriented Architecture (SOA)							**X**	

Graphics/Design trainings								
▪ Color/Photo handling		**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ 2D/3D Modeling		**X**			**X**			
▪ 2D/3D Animation		**X**			**X**			
▪ Desktop Publishing				**X**	**X**			
▪ Web Design	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
eLearning design standards								
▪ The SCORM model					**X**			
▪ eLearning Platforms					**X**			
Video over IP networks training								
▪ IPTV and Digital Rigths Management		**X**			**X**			
Languages training								
▪ Business Writing Skills	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Application Usability training								
▪ Web Usability, Ergonomics, Interactivity	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Business trainings								
▪ Brand Management	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Selling Skills	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Human Resources	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Marketing Essentials	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Accounting and Finance	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Cashflow Management	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Business Plan writing	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Legal trainings								
▪ Incorporation,	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Labor Law	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ Taxation	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
▪ IPR law	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

Annex I

European eContent initiatives

- BRIDGES Business Route for Investors to Determine Gitted Entrepreneurs and Start-ups – www.eurobridges.net
- CONTESSA – http://contessa.intranet.gr
- DELOS – Network of Digital Libraries – www.delos.info
- ENTEND - European Network for Technological Development – www.entend-eu.org
- EEEL – Excellence in European E-Content Localisation – www.eeel-online.com
- Incubator Hungary - http://www.etw.org/2003/case_studies/eGov_hungary_startups.htm
- Content Reference Forum – www.crforum.org
- Digital Content Forum – www.dcf.org.uk
- E-Content Institute – www.E-Contentinstitute.org
- International Centre for Digital Content (ICDC) – www.icdc.org.uk
- Online Publishers Association (OPA) – www.online-publishers.org
- Digital Games Research Association (DIGRA) – www.digra.org
- Digital Storytelling Association (DSA) – www.dsaweb.org
- eForum – Forum for European ePublic Services – www.eu-forum.org
- Mobeyforum - Mobile Technology in Financial Services – www.mobeyforum.org
- Mobile Data Association (MDA) – www.mda-mobiledata.org
- Mobile Entertainment Forum (MEF) – www.mobileentertainmentforum.org
- UMTS Forum – www.umts-forum.org
- UPA – The Usability Professional Association – www.upassoc.org
- Wireless World Forum – www.w2forum.orG

World Bank Infodev incubators

- Access Nova - Chile
- Acorn Technologies - South Africa
- Ankara Cyberpark Inc. - Turkey
- ANPROTEC - Brazil
- Bahia Blanca Technopole - Argentina
- Chinese Business Incubation Association - Taiwan
- CIE-TEC - Costa Rica
- Corporacion Parque Tecnologico de Quito - Ecuador
- Ghana Multimedia Incubator Centre - Ghana
- InfoCon Co., Ltd - Mongolia
- Information and Telecommunication Technologies Development Association (INFOTEK) - Azerbaijan
- Intermediate Technology Development Group (ITDG) - South Asia - Sri Lanka
- Internet Works Sp. z o.o. - Poland
- Isfahan Science & Technology Town (ISTT) - Iran
- IT Professional Forum (ITF) - Nepal
- IT@AB Network - Namibia - Namibia
- Kharkov Technology Business Incubator (Kharkov Technologies) - Ukraine
- Kulim Technology Management Sdn Bhd - Malaysia
- MICTI technology and Business Incubator - Mozambique
- National Association of Technological Software Parks of Colombia - Colombia
- Regional Management Office - IBM / Integra - Saint Vincent and the Grenadines
- Rooyesh ICT Incubator - Iran
- Softstart BTI - South Africa
- Technology Park Varazdin - Croatia
- Universiti Teknologi Malaysia (UTM) - Malaysia
- Vellore Institute of Technology (VIT) - India
- Viasphere Technopark - Armenia
- YES Incubator - Former Yugoslav Republic of Macedonia

Annex II

Router
A router is an electronic device whose software and hardware are usually tailored to the tasks of routing and forwarding information between different types of networks.

With appropriate software (such as SmoothWall, XORP or Quagga), a standard PC can act as a router and can connect two or more logical subnets.

Firewall
A firewall is a device or set of devices configured to permit, deny, encrypt, or proxy all computer traffic between different security domains based upon a set of rules or other criteria.

Proxy Server
A proxy server is a server which services the requests of its clients by forwarding requests to other servers. It can be placed in the user's local computer or at specific key points between the user and the destination servers or the Internet. It is used to prevent users from accessing certain destinations or to redirect them to more interesting ones for various reasons (security, confidentiality, performance, …)

Mail Server
Server that will manage the emails of an organization. It is usually equipped with special software (MS Exchange, Lotus Domino, JES Mail, Dovecot, …)

Web Server
A computer that is responsible for accepting HTTP requests from clients, which are known as web browsers, and serving them HTTP responses along with optional data contents, which usually are web pages such as HTML documents and linked objects (images, etc.) usually using a software like Appache. It is used to publish web sites or have a web presence.

Identity Management - Domain Controller Server
An Identity management server is a shared platform and consistent processes for managing information about users: who they are, how they are authenticated, and what they can access.
A managed system may be an operating system, database or application where users access some features or data, and where user access must be controlled. There are many possible types of managed systems, including:

- Network operating systems: Unix, Windows NT, Windows 2000, Novell NetWare, etc.
- Directories: LDAP, x.500, etc.
- Host operating systems: MVS/OS390/zOS, OS400, OpenVMS, Tandem, Unisys, etc.
- Groupware and e-mail systems: MS Exchange, Lotus Notes, Novell GroupWise, etc.
- Applications: SAP R/3, PeopleSoft, Oracle Applications, etc.
- Database servers: Oracle, Sybase, MSSQL, Informix, DB2/UDB, etc.

File Server
A file server is a computer attached to a network that has the primary purpose of providing a location for the shared storage of computer files (such as documents, sound files, photographs, movies, images, databases, …) that can be accessed by the workstations that are attached to the computer network.

Storage and storage management
Computer data storage retains digital data used for computing for some interval of time. It is one of the fundamental components of all modern computer and network installations.

Similarly, *storage* today more commonly refers to mass storage - optical discs, forms of magnetic storage like, and other types. It is usually used in SANs over networks (Storage Area Networks). A SAN is an architecture to attach remote computer storage devices (such as disk arrays, tape libraries and optical jukeboxes) to servers in such a way that, to the operating system, the devices appear as locally attached.

By contrast to a SAN, Network Attached Storage (NAS) uses file-based protocols such as NFS or SMB/CIFS where it is clear that the storage is remote, and computers request a portion of an abstract file rather than a disk block.

Sharing storage usually simplifies storage administration and adds flexibility since cables and storage devices do not have to be physically moved to move storage from one server to another.

Other benefits include the ability to allow servers to boot from the SAN itself. This allows for a quick and easy replacement of faulty servers since the SAN can be reconfigured so that a replacement server can use the LUN (Logical UNits) of the faulty server.

SANs also tend to enable more effective disaster recovery processes. A SAN could span a distant location containing a secondary storage array. This enables storage replication either implemented by disk array controllers, by server software, or by specialized SAN devices.

SANs often utilize a Fibre Channel fabric topology - an infrastructure specially designed to handle storage communications. It provides faster and more reliable access than higher-level protocols used in NAS.

Today, all traditional SAN equipment vendors such as Hitachi, EMC, IBM, HP, SUN and others also offer some form of Fibre Channel routing solution, and these bring substantial scalability benefits to the SAN architecture by allowing data to cross between different fabrics without merging them.

SANs in the Media and Entertainment
Video editing workgroups require very high data rates. Outside of the enterprise market, this is one area that greatly benefits from SANs.

Per-node bandwidth usage control is especially important in video workgroups as it lets you ensure a fair and prioritized bandwidth usage across your network. Avid Unity, Apple's Xsan and Tiger Technology MetaSAN are specifically designed for video networks and offer this functionality.

HPC-Grid computing
A Grid is a collection of computers connected together with a software that allows the simultaneous use those computers in order to provide a high performance environment. A Grid is used for complex scientific, industrial, medical or imagery (gaming, virtual reality, …) applications.

It uses software such as the Parallel Virtual Machine (PVM), the Message Passing Interface (MPI) to synchronize the processes between all available CPU's.

These softwares are designed to allow a network of heterogeneous machines to be used as a single distributed parallel processor, it permits a heterogeneous collection of Unix and/or Windows computers hooked together by a network to be used as a single large parallel computer. Thus large computational problems can be solved more cost effectively by using the aggregate power and memory of many computers.

Most of these implementations consist of a specific set of routines (API) callable from Fortran, C, or C++ and from any language capable of interfacing with such routine libraries.
Grid interfaces are meant to provide essential virtual topology, synchronization and communication functionality between a set of processes.

Additionnal scientific libraries such as PETSc, the Portable, Extensible Toolkit for Scientific computation might be used to solve specific problems such as nonlinear and linear equation solvers that employ a variety of Newton techniques and Krylov subspace methods. PETSc also provides an interface to several external software packages including BlockSolve95, ESSL, Matlab, ParMeTis, PVODE, and SPAI.

Middleware – Message Brokers
Message-oriented middleware (MOM) is a multi-tiers infrastructure that increases the interoperability, portability, and flexibility of an application by allowing the application to be distributed over multiple heterogeneous platforms.

Its major benefit lies in the fact that it creates a layer between applications thus reducing the complexity of developing interfaces that span multiple operating systems and network protocols. It insulates the application developer from the details of the various operating systems and network interfaces. APIs that extend across diverse platforms and networks are typically provided by the MOM.

MOM is a software that resides in both portions of an nTiers architecture and typically supports synchronous and/or asynchronous calls between the client and server applications. Message queues provide temporary storage (store and foreword) when the destination program is busy or not connected. MOM reduces the involvement of application developers with the complexity of the master-slave nature of the client/server mechanism.

Most message-oriented middleware depend on a message queue system (such as the famous MQ-Series from IBM), but there are some implementations that rely on broadcast or multicast messaging systems.

Such applications are often used with Message brokers. A Message broker is an intermediary program that transforms a message from the formal messaging protocol of the sender to the formal messaging protocol of the receiver in a telecommunication network where programs communicate by exchanging formally-defined messages.

List of the most popular Message broker software

- Financial Fusion Message Broker (Sybase)
- JBoss Messaging (JBoss)
- Microsoft BizTalk Server (Microsoft)
- Oracle Message Broker (Oracle Corporation)
- WebSphere Message Broker (IBM)
- webMethods Message Broker (BEA)

Application Servers
An application server is a software engine that delivers applications to client computers or devices, typically through the Internet and using the HTTP protocol. *Application servers* are distinguished from web servers by the extensive use of server-side dynamic content and frequent integration with database engines.

An application server handles most, if not all, of the business logic and data access of the application.
The main benefit of an application server is the ease of application development, since applications need not be programmed; instead, they are assembled from building blocks provided by the application server.

Application servers run on many platforms of web-based applications, such as integrated platforms for e-commerce, content management systems, and web-site builders. Alternatively, the term is used as a synonym for web application framework.

Following the success of the Java platform, the term *application server* sometimes refers to a Java Platform--Enterprise Edition (J2EE) or Java EE 5 application server. Among the better known Java Enterprise Edition application servers are:

- WebLogic Server (BEA)
- JBoss (Red Hat)
- WebSphere Application Server and WebSphere Application Server Community Edition (IBM),
- Apache Geronimo (Apache Software Foundation)
- Oracle OC4J (Oracle Corporation)
- Sun Java System Application Server (Sun Microsystems)

Portals
A Web Portal is an Application that provides a single function via a web page or site. Web portals often function as a point of access to information on the World Wide Web. Portals present information from diverse sources in a unified way. Aside from the search engine standard, web portals offer other services such as e-mail, news, stock prices, infotainment and various other features. Portals provide a way for enterprises to provide a consistent look and feel with access control and procedures for multiple applications, which otherwise would have been different entities altogether. An example of a web portal is Yahoo!

Two broad categorization of portals are a. Horizontal portals (e.g. Yahoo) b. Vertical portals (focused on one functional area. e.g., salesforce.com).

A portal is designed to use distributed applications, different numbers and types of middleware and hardware to provide services from a number of different sources. In addition, business portals are designed to share collaboration in

workplaces on multiple platforms such as personal computers, personal digital assistants (PDAs), and cell phones/mobile phones. It can be integrated with many forum systems.

Below is detailed list of advantages of using portals:

- Intelligent integration and access to enterprise content, applications and processes
- Improved communication and collaboration among customers, partners, and employees
- Unified, real-time access to information held in disparate systems
- Personalized user modification and maintenance of the website presentation

Below are the properties of portals:

- Look and feel
- Consistent headers and footers, color schemes, icons and logos which gives the user a feel and sense of consistency, uniformity, and ease of navigation
- A portlet is an application within a browser window, displayed in an effective layout
- A portlet is itself a web application
- Portlets are aggregated by the portal page

List of the most popular Popular software:

- SAP Portal (SAP)
- SUN JES Portal (SUN Microsystems)
- Microsoft SharePoint Portal Server (Microsoft)
- Oracle Portal (Oracle Corporation)
- Websphere Portal (IBM)
- Weblogic Portal (BEA)

Business Choreographers
Business Choreography systems are mainly WebServices interaction systems made to achieve a business goal. Those systems are described by the WS-CDL (Web Services Chorography Definition Language) which is an XML-based language that describes peer-to-peer collaborations of parties by defining, from a global viewpoint, their common and complementary observable behavior; where ordered message exchanges result in accomplishing a common business goal.

The Web Services specifications offer a communication bridge between the heterogeneous computational environments used to develop and host applications. The future of E-Business applications requires the ability to perform long-lived, peer-to-peer collaborations between the participating services, within or across the trusted domains of an organization.
The Web Services Choreography specification is targeted for composing interoperable, peer-to-peer collaborations between any type of party regardless of the supporting platform or programming model used by the implementation of the hosting environment.

Web Services are any form of computational process with which one may interact; examples are a buying process and a selling process that are implemented as computational services in a Service Oriented Architecture (SOA) or indeed as a Web Services implementation of an SOA.

Encryption-Public Key Infrastructures (PKI)
In cryptography, a public key infrastructure (PKI) is an arrangement that binds public keys with respective user identities by means of a certificate authority (CA). The user identity must be unique for each CA.
The term trusted third party (TTP) may also be used for certificate authority (CA).

PKI arrangements enable computer users without prior contact to be authenticated to each other, and to use the public key information in their public key certificates to encrypt messages to each other.

In general, a PKI consists of client software, server software, hardware (e.g., smart cards), legal contracts and assurances, and operational procedures.

In general, a PKI enables the parties in a dialogue to establish confidentiality, message integrity and user authentication without having to exchange any secret information in advance, or even any prior contact.

When deploying a PKI, the most important part is appropriate CA software. There are several solutions on the market:

- Microsoft: Windows 2000 Server and Server 2003 both contain CA software, which is integrated into the Active Directory and doesn't require additional license fees. This is currently the most popular solution on the market
- OpenTrust: Offers a product called OpenTrust-PKI.
- CoSign - A built-in CA, leveraging existing user directory management systems (e.g. Active Directory, Novell eDirectory and LDAP).
- Linux: Linux supports OpenSSL and OpenCA, which are two open source CA solutions. It also supports EJBCA.
- GlobalSign: Offers TrustedRoot" a PKI CA Rootstore
- Entrust: The product Entrust Authority is the most popular CA solutions. Entrust offers PKI software and a managed service options mainly in the .gov space.
- CyberTrust: Offers a product calledTrustedCA.
- RSA Security: Offers a product called Keon.
- Cryptomathic: Offers a product called CCA.
- Red Hat Certificate System: Formerly the Netscape Certificate Server.
- IdenTrust: Offers a managed PKI for the banking community.
- IBM: Offers PKI Services for main frame eviroments.

Encoders-Encryptors
A variety of encoders can be implemented with relative ease on PCs and in consumer electronics equipment. Those are used to transform analog video signals into digital ones. Encoders can reside on computers or on stand-alone electronic devices, all will deliver digital video signal over IP networks.

A list of popular codecs specified in international standards.

- MPEG-1 Part 2: Used for Video CDs, and also sometimes for online video.

- MPEG-2 Part 2: Used on DVD, SVCD, and in most digital video broadcasting and cable distribution systems.

- MPEG-4 Part 2: An MPEG standard that can be used for internet, broadcast, and on storage media. It offers improved quality relative to MPEG-2.

- DivX, Xvid, FFmpeg MPEG-4 and 3ivx: Different implementations of MPEG-4 Part 2.

- WMV (Windows Media Video): Microsoft's family of video codec designs including WMV 7, WMV 8, and WMV 9. It can do anything from low resolution video for dial up internet users to HDTV.

- RealVideo: Developed by RealNetworks. A popular codec technology a few years ago, now fading in importance for a variety of reasons.

Popular Video encoding and conversion tools:

- Adobe Media Encoder (Windows, Mac OS X)
- Apple Compressor (Mac OS X)
- AVS Video Converter (Microsoft Windows)
- ConvertHQ (Microsoft Windows)
- Canopus Procoder (Microsoft Windows)
- Digital Media Converter (Microsoft Windows)
- GEAR Video
- iCR from Snell & Wilcox (Microsoft Windows)
- Apple QuickTime Pro (Mac OS X, Microsoft Windows)
- Xilisoft video converter 3 (Microsoft Windows)

Non-Linear Editors (NLE)
Non-linear editing for film and television postproduction is a modern editing method which involves being able to access any frame in a video clip with the same ease as any other. Non-linear, non-destructive methods began to appear with the introduction of digital video technology.

Video and audio data are first captured (encoded) to hard disks or other digital storage devices. The data is either recorded directly to the storage device or is imported from another source. Once imported they can be edited on a computer using any of a wide range of software.

Compared to the linear method of tape-to-tape editing, non-linear editing offers the flexibility of film editing, with random access and easy project organization.

With the edit decision lists, the editor can work on low-resolution copies of the video. This makes it possible to edit both standard-definition broadcast quality and high definition broadcast quality very quickly on normal PCs which do not have the power to do the full processing of the huge full-quality high-resolution data in real-time.

A computer for non-linear editing of video will usually have a video capture card to capture analog video and/or a FireWire connection to capture digital video from a DV camera, with its video editing software. Modern web based editing systems can take video directly from a camera phone over a GPRS or 3G mobile connection, and editing can take place through a web browser interface, so strictly speaking a computer for video editing does not require any installed hardware or software beyond a web browser and an internet connection.

Various editing tasks can then be performed on the imported video before it is exported to another medium, or MPEG encoded for transfer to a DVD or tape.

List of popular Non-Linear Editing Systems:

- Adobe Systems
  - Adobe Premiere Elements (Microsoft Windows)
  - Adobe Premiere Pro (Microsoft Windows, Mac OS X)
- Apple Inc.
  - Final Cut Pro (Mac OS X)
- Autodesk Discreet Smoke and Discreet Fire (Linux, IRIX)
- Avid Technology
  - Avid DS Nitris (Microsoft Windows)
  - Avid Liquid (Microsoft Windows)
  - Avid Media Composer (Microsoft Windows, Mac OS X)
  - Avid NewsCutter Adrenaline
  - Avid Symphony Nitris (Microsoft Windows, Mac OS X)
  - Avid Xpress DV (Microsoft Windows, Mac OS X)
  - Avid Xpress Pro (Microsoft Windows, Mac OS X)
- Leitch Velocity (Microsoft Windows)
- Lightworks (Custom hardware)
- Media 100
  - Media 100 HD Suite (Mac OS X)
  - Media 100 HDe (Mac OS X)
  - Media 100 SDe (Mac OS X)
  - Media 100 Producer (Mac OS X)
  - Media 100 Producer Suite (Mac OS X)
- Nero 7 Premium (Microsoft Windows)
- Pinnacle (Microsoft Windows)
- Ulead Systems MediaStudio Pro and VideoStudio (Microsoft Windows)
- Windows Movie Maker (Microsoft Windows)

Non-linear video editing software - Free/Open Source Software:

- Blender (3D animation suite) (cross-platform)
- Cinelerra (Linux)
- HyperEngine-AV (Macintosh)
- Jahshaka (Cross platform)
- Kdenlive (Linux)
- Kino (Linux)
- LiVES (Linux/BSD/IRIX/Mac OS X/Darwin)

- LIVE (Linux)
- Open Movie Editor (Linux)
- PiTiVi (Linux)
- ZS4 (Cross platform)

Streaming Servers
Streaming servers are computer hardware and software that can deliver video over IP networks.
Multiple protocols exist to support streaming media:

- Datagram protocols, such as the User Datagram Protocol (UDP)
- The Real-time Streaming Protocol (RTSP), Real-time Transport Protocol (RTP) and the Real-time Transport Control Protocol (RTCP) were specifically designed to stream media over networks. The latter two are built on top of UDP.
- Reliable protocols, such as the Transmission Control Protocol (TCP), guarantee correct delivery
- Unicast protocols send a separate copy of the media stream from the server to each client.
- Multicast protocols were developed to try to cut down on the duplication that Unicast protocols cause.
- IP Multicast, the most prominent of multicast protocols, must be implemented in all nodes between server and client including network routers.
- Peer-to-peer (P2P) protocols arrange for media to be sent from clients that already have them to clients that do not.

Multiple formats of video can be streamed over the network, such as DV25, DV50, MPEG1, 2, 4, Quicktime, Real, WMV, and most recently the light FLV (Flash Video) used with applications such as social video, corporate video and eLearning.

Rendering Farms
A render farm is a computer cluster or grid to render computer generated imagery, typically for architecture, photos, film and television visual effects, in off-line batch processing.

The rendering of images is a highly parallelizable activity, as each frame usually can be calculated independently of the others. A rendering farm is practically assimilated to a grid with specific goals of calculating imagery and effects.

To manage large farms, one must introduce a *queue manager* that automatically distributes processes to the many processors. Each "process" could be the rendering of one full image, a few images, or even a sub-section (or *tile*) of an image. The software is typically a client-server package that facilitates communication between the processors and the queue manager, although some queues have no central manager. Some common features of queue managers are: re-prioritization of the queue, management of software licenses, and algorithms to best optimize throughput based on various types of hardware in the farm.

List of popular queuing software with supported applications:

- DrQueue Open-Source (3Delight, Blender, BMRT, Maya, mental ray, Pixie)
- Smedge (3ds max, After Effects, Digital Fusion, Houdini, Lightwave, Maya, Mayaman, mental ray, SoftImage, Shake, RayZ, XSI)
- Qube (Houdini, Maya, Render Man, SoftImage, Shake, all command line rendering)
- Rush (Houdini, Maya, Render Man, SoftImage, Shake, others)
- Muster (3ds max, After Effects, Digital Fusion, Lightwave, Maya, mental ray, SoftImage, Shake, XSI)
- Spider Open-Source (Maya, others)

Authoring Stations
Authoring tools for eLearning environments have a major challenge to address: how to reuse and share the teaching materials and instructional experiences among multiple e-learning systems. Sharable Content Object Reference Model (SCORM), the most popular international teaching materials standard, uses the metadata to specify the structure of every learning object and proposes the content aggregation scheme to package these objects with XML language format.

Learning contents in Sequencing and Navigation (SN) is organized into a hierarchical structure, namely Activity Tree (AT) and can be viewed using multiple eLearning platforms.

Authoring tools must ensure important features among others:

- Rapid development – content must be input/organized independent of appearance. Course look-and-feel must quickly be applied/modified, affecting the entire course.
- Embedded web and instructional design concepts (navigation, course flow, page structure, drill downs)
- Searchable standard HTML
- Works on any Microsoft, Netscape, Mozilla, AOL, Safari browser
- Automatically creates ADA 508 conformant courses (for blind readers)
- Works with any size display (little or big monitor, high or low resolution)
- Unlimited, easy inclusion of ANY web content including dynamic HTML, JavaScript, etc.
- Highest level of SCORM adherence
- Content author can just select LMS or specification, and regenerates the course.

List of popular Authoring tools:

- Adobe Presenter
  - Tool to create tutorials from within Microsoft® PowerPoint®. (Formerly Macromedia Breeze Presenter)
- Articulate - Rapid E-Learning Studio
  - Empower rapid e-learning with a set of powerful authoring tools: Presenter, Quizmaker & Engage
- CourseLab
  - eLearning authoring tool
- eXe
  - eLearning HTML editor
- Lectora
  - Authoring software available for interactive multimedia content

Exhaustive list available on: http://www.c4lpt.co.uk/Directory/Tools/authoring.html

Appendix III

1- UNIX USER INTRODUCTION

Synopsis
This course is a practical introduction to the use of the Unix operating system. It focuses on the underlying principles of Unix in a system-independent way, no matter whom the vendor may be.

Pre-requisites
Knowledge of Operating Systems principles.

Suitable for
Experienced software and system professionals who wish to gain an in-depth understanding of the use and application of Unix.

Delivery
The course is practical in nature, making extensive use of hands-on exercise sessions.

Content

Lesson 1: Introduction
The History and Features of Unix

Lesson 2: The Structure of Unix
The Unix System
The Shell
Users
The Unix File System

Lesson 3: Accessing the System
Logging on
The Login Process
Exiting from the System

Lesson 4: The Unix Command Line
Command Line Syntax
Multi-Processing
passwd
man – Online Manual

Lesson 5: Directory and File Commands
pwd – Print Working Directory
cd – Change Directory
ls – List
Wildcards
File Name Generation
mkdir – Make Directory
mvdir – Move Directory
rmdir – Remove Directory
cp – Copy
ln – Link
mv – Move
rm – Remove
chmod – Change Mode of Access
unmask – User Mask
chown – Change Owner
chgrp – Change Group

Lesson 6: File Manipulation
wc – Word Count
grep – Global Regular Expression Printer
Sort
Cut
Find

Lesson 7: The vi Editor
Starting vi
Exiting vi
Modes of Operation
Command Mode
The Screen Commands
Searching

Lesson 8: vi Edit Mode
Text Insertion
Text Deletion
Text Modification
Text Movement
Named Buffers
Special Commands

2- Unix Advanced User

Synopsis
This course is an advanced course to the use of the Unix operating system. It focuses on advanced features of Unix in a system-independent way, no matter whom the vendor may be.

Pre-requisites
Familiarity with basic Unix computing and programming concepts by attending Unix User Introduction

Suitable for
Experienced system professionals who wish to gain an advanced understanding of the use and application of Unix.

Delivery
The course is practical in nature, making extensive use of hands-on exercise sessions.

Content

Lesson 1: File Manipulation
Basic Text File Utilities
The head Utility
The tail Utility
The tr Utility
The od Utility
The paste Utility
The split Utility

Lesson 2: File Investigation
The cmp Utility
The comm. Utility
The diff Utility
The uniq Utility
The spell Utility

Lesson 3: File Compression
The compress, uncompress and zcat Utilities

The pack, unpack and pcat Utilities
A Comparison of the compress and pack Utilities

Lesson 4: Backing Up Files
Tape Archiving
Copy Input/Output

Lesson 5: Command Control
The tee Utility
The nice Utility
The wait Utility
Job Suspension and the fg and bg Utilities
The jobs Utility
The cron Utility
Cron Tables
The crontab Utility
Editing a cron Table
Cron allow and cron deny
The at Utility

Lesson 6: Advanced vi Facilities
Bookmarks
Multiple File Editing
Cut and Paste to Different Files
Accessing Linux Commands from vi
The set Command
EXINIT and .exrc
Mapped Macros
Abbreviations

Lesson 7: The sed Utility
Basic Editing Facilities
The Use of Regular Expressions
Deleting Lines
Print Selected Lines
sed Scripts

Lesson 8: The awk Utility
Programs
Checking Numerical Values
Multiple-Line Commands
Arithmetic and Assignment Operators
Variables
BEGIN and END
Built-in Variables
Control of Flow
Looping
Control Commands
Formatting Output
Built-in Functions
User-Defined Functions
Arrays

4- Linux Professional – System Administration

Lesson 1: Linux History and Operation
The Evolution of Linux
The GNU Movement and the GPL

Linux Operations as a Server
The Architecture and Structure of Linux

Lesson 2: Installing and Configuring Linux
Introduction to Installation and Media Types
Performing a Custom Linux Server Installation
Run Levels and the Startup/Shutdown Sequence
Logging In and Out of a Linux System

Lesson 3: Shells, Commands, and Navigation
Introduction to Linux Shells, Commands, and Navigation
Navigating the Linux File Systems
Using Shell Variables in Bash
The Bash Shell
Commands for Obtaining System Information
Examining File Contents
Customizing your Shell Environment
Manipulating Commands and Their Input/Output
Getting Help

Lesson 4: Common Text Editors
Using the Emacs Editors
Using the vi Editor
Using the Pico Editor
Manipulating Text Files From the Command Line
Using Awk
Using Sed

Lesson 10: Shell Scripting
Introduction to Shell Scripting
Variables
Basic Control Structure
Loops
Command-Line Arguments

Lesson 11: Linux Software Management
The Software Life Cycle
Querying Installation

Lesson 12: Linux System Management
Choosing a Server
The /proc Filesystem
The Swap Partition
The sudo Command

Lesson 5: Configuring and Using X Windows
Introduction to X Windows
Configuring XFree86
Windows Managers and Desktop Environments

Lesson 6: Linux Printing
The Line Printer Daemon (lpd)
Printing
Administering a Linux Printer Queue

Lesson 7: Users and Groups
Introduction to Users, Groups
Essentials of Effective User, Group, and Password Management

Lesson 8: The Ext2 FileSystem
Introduction to the Second Extended (Ext2) Filesystem
Partitioning and Formatting
Mounting and Configuring Filesystems
Understanding Permissions

Lesson 9: The Linux Kernel
Introduction to the Linux Kernel
Using Kernel Modules
Compiling the Linux Kernel
Installing the Linux Kernel

5- Installing and Configuring the Windows Vista Operating System

Prerequisites
Familiarity with computer hardware and devices as well as basic TCP/IP knowledge
Module 1: Installing Windows Vista
Introduction to Windows Vista
Performing a Clean Installation of Windows Vista
Installing and Configuring Windows Vista Device Drivers
Module 2: Upgrading and Migrating to Windows Vista Ultimate Edition
Upgrading and Migrating to Windows Vista from a Previous Version of Windows
Upgrading Between Windows Vista Editions
Module 3: Configuring Post-Installation System Settings
Configuring the Windows Aero Experience
Configuring Accessibility Features
Configuring Parental Controls
Module 4: Sharing Files by Using Windows Vista
Sharing Data with Others
Managing Windows Vista Files
Module 5: Configuring Advanced Networking
Configuring Network Connectivity
Configuring Remote Access
Module 6: Configuring User Account Security
Configuring User Account
Troubleshooting User Account Control
Module 7: Configuring Network Security
Configuring Windows Defender in Windows Vista
Configuring Windows Firewall Settings
Module 8: Configuring Internet Explorer 7.0
Configuring Internet Explorer 7.0
Configuring Dynamic Security for Internet Explorer 7.0

6- Oracle 10G Database: Workshop

Learning Objectives:
Install and configure the Oracle Database 10g
Create and administer user accounts in the Oracle Database 10g
Backup and Recovery of the Oracle Database 10g
Monitor, troubleshoot, and maintain the Oracle Database 10g
Configure Oracle Net services for the Oracle Database 10g

Target Audience:
Database Administrators
Sales Consultants
Support Engineer
Technical Consultant

Topics Covered:

Introduction
- Explain the course objectives
- Identify the Oracle product line
- Describe the basic concepts of a relational database
- Know core database administrator tasks

Installing Oracle Database 10g Software
- Identify system requirements
- Use optimal flexible architecture
- Install software with the Oracle Universal Installer

Create an Oracle Database
- Describe Oracle Database Architecture
- Understand the instance architecture
- Use the management framework
- Use the Database Creation Assistant

Database interfaces
- Use structured query language (SQL)
- Use Procedural Language/Structured Query Language (PL/SQL)
- Use Java
- Use the Oracle C++ Call Interface (OCCI)

Controlling the database
- Start and stop the agent
- Start and stop the enterprise manager database console
- Start and stop the listener
- Startup and shutdown the database

Storage Structures
- Define the purpose of tablespaces and data files
- Create tablespaces
- Manage tablespaces
- Obtain tablespace information
- Create and manage tablespaces using Oracle Managed Files (OMF)

Administering users
- Create and manage database user accounts
- Create and manage roles
- Grant and revoke privileges
- Control resource usage by users

Managing Schema Objects
- Create and modify tables
- Define constraints
- View the attributes of a table
- View the contents of a table
- Create indexes and views

Managing Data
- Manipulating data through SQL
- Using Import
- Using Export
- Using SQL Loader

PL/SQL
- Identify PL/SQL objects

Understand triggers and triggering events
Identify configuration options that affect PL/SQL performance

Oracle Database Security
Apply the principal of least privilege
Manage default user accounts
Implement standard password security features
Audit database activity

Oracle Net Services
Understand Oracle Net concepts
Use Oracle Net Manager to create and configure listeners
Use the listener control utility to control the Oracle Net Listener
Use the Oracle Net Manager to configure client and middle-tier connection
Use TNSPING to test Oracle Net connectivity

Oracle Shared Server
Understand when to use Oracle Shared Servers
Configure Oracle Shared Servers
Monitoring Shared Servers

Performance Monitoring
Troubleshoot invalid and unusable objects
Gather optimizer statistics
View performance metrics
React to performance issues

Proactive Maintenance: Objectives
Set warning and critical alert thresholds
Collect and use baseline metrics
Use tuning and diagnostic advisors
Use the Automatic Database Diagnostic Monitor (ADDM)
Manage the Automatic Workload Repository

Undo Management
Monitor and administer undo
Configure undo retention
Guarantee undo retention
Use the undo advisor

Monitoring and Resolving Lock Conflicts
Detect and resolve lock conflicts
Manage deadlocks

Backup and Recovery Concepts
Describe the basics of database backup, restore and recovery
List the types of failure that may occur in an Oracle Database
Describe ways to tune instance recovery
Identify the importance of checkpoints, redo log files, and archived log file
Configure ARCHIVELOG mode

Database backups
Create consistent database backups
Back your database up without shutting it down
Create incremental backups
Automate database backups
Monitor the flash recovery area

Database Recovery
Recover from loss of a control file
Recover from loss of a redo log file
Recover from loss of a data file

7- Oracle 10G Database2 : Workshop II

Learning Objectives:
Use RMAN to create and manage backup sets and image copies
Recover the database to a previous point in time
Use Oracle's Flashback technology to recover your database
Detect block corruptions and take appropriate measures to correct them
Use the various Database advisors and views to monitor and improve database performance
Control database resource usage with the Resource Manager
Simplify management tasks by using the Scheduler
Improve the security of the listener
Review database log files for diagnostic purposes
Customize language-dependent behavior for the database and individual sessions

Target Audience:
Sales Consultants
Database Administrators
Support Engineer
Technical Consultant

Topics Covered:
Using Globalization Support
Specifying Language-Dependent Behavior
Locale Variants
Linguistic Sorting
Case and Accent Insensitive Sorts
Linguistic Comparisons
Obtaining Information about the Current NLS Configuration

Securing the Oracle Listener
Listener Password Authentication
Controlling Database Access
Securing the EXTPROC Service Entry

Configuring Recovery Manager
Using a Flash Recovery Area with RMAN
Setting Parameters for RMAN
Starting RMAN
Configuring Persistent Settings for RMAN
Control File Autobackups
Retention Policies

Using Recovery Manager
Issuing Recovery Manager Commands
Parallelization of Backup Sets
Compressed Backups
Copying the Whole Database
Making Incremental Backups
Block Change Tracking
Incrementally Updating Backups
Monitoring RMAN Backups

Diagnostic Sources

The Alert Log
Viewing Alerts with EM
Alerts Notification
Editing Thresholds
Trace Files

Recovering from non-critical losses
Creating New Temporary Tablespace
Recreating Redo Log Files
Recovering an Index Tablespace
Read-Only Tablespace Recovery
Loss of Password Authentication File

Database Recovery
Recovery Steps
User-Managed Recovery Procedures: RECOVER Command
Types of incomplete recovery
Incomplete Recovery Best Practices
Recovery Using EM
Simple Recovery Through RESETLOGS
Point-in-time recovery using RMAN

Flashback database
When to Use Flashback Technology
Configuring Flashback Database
Monitoring Flashback Database
Best Practices for the Database and Flash Recovery Area
Flash Recovery Area Space Usage
Flashback Database Examples

Recovering from user Errors
Recycle Bin
Flashback Dropped Tables Using EM
Querying Dropped Tables
Flashback Versions Query
Flashback Transaction Query
Using Flashback Versions Query and Flashback Transaction Query
Flashback Table
Using EM To Flashback Tables

Dealing with Database Corruption
What is block corruption?
Interpreting DBVERIFY
The ANALYZE command
How to Handle Corruptions
The DBMS_REPAIR Package
Block Media Recovery (BMR)
Detecting Database Corruptions Using DBVERIFY
Using RMAN to Repair Corrupt Blocks

Automatic Database Management
Automatic Optimizer Statistics Collection
Workload Repository
Database Control and Advisors
Using the SQL Tuning Advisor
Using the SQL Access Advisor
Automatic Undo Retention Tuning

Monitoring and Managing Storage
Redo Logfile Size Advisor
Resumable Statements
Tablespace Space Usage Monitoring
Accessing the Segment Advisor
Shrinking Segments Using SQL
Segment Resource Estimation
Monitoring Index Space
Identifying Unused Indexes

Automatic Storage Management
ASM Concepts
ASM General Architecture
Creating an ASM instance
Creating tablespaces that use ASM storage
Viewing ASM information
Migrating a tablespace to use ASM storage

Monitoring and Managing Memory
Oracle Memory Structures
Automatic PGA Memory Management
Using the Memory Advisor
Using Automatic Shared Memory Management to avoid long running query issues

Managing Resources
Creating a New Resource Plan
Creating Resource Consumer Groups
Assigning Users to Resource Consumer Groups
Adaptive Consumer Group Mapping
Using Sub-Plans to limit CPU Utilization
Administering the Resource Manager
Resource Plan Directives

Automating Tasks with the Scheduler
Creating a Scheduler Job
Using Scheduler Programs
Creating and Using Schedules
Creating a Job Class
Prioritizing Jobs within a Window
Viewing Job Execution Details
Creating a job that runs a program outside of the database

8- Implementing a Microsoft Server 2005 Database

Module 1: Creating Databases and Database Files
Creating Databases
Creating Filegroups
Creating Schemas
Creating Database Snapshots

Module 2: Creating Data Types and Tables
Creating Data Types
Creating Tables
Creating Partitioned Tables

Module 3: Using XML
Retrieving XML by Using FOR XML
Shredding XML by Using OPENXML
Introducing XQuery

Using the XML Data Type

Module 4: Creating and Tunning Indexes
Planning Indexes
Creating Indexes
Optimizing Indexes
Creating XML Indexes

Module 5: Implementing Data Integrity by Using Constraints
Data Integrity Overview
Implementing Constraints

Module 6: Implementing Data Integrity by Using Triggers and XML Schemas
Implementing Triggers
Implementing XML Schemas

Module 7: Implementing Views
Introduction to Views
Creating and Managing Views
Optimizing Performance by Using Views

Module 8: Implementing Stored Procedures
Implementing Stored Procedures
Creating Parameterized Stored Procedures
Handling Errors

Module 9: Implementing Functions
Creating and Using Functions
Working with Functions
Controlling Execution Context

Module 10: Implementing Managed Code in the Database
Introduction to the SQL Server Common Language Runtime
Importing and Configuring Assemblies
Creating Managed Database Objects

Module 11: Managing Transactions and Locks
Overview of Transactions and Locks
Managing Transactions
Understanding SQL Server Locking Architecture
Managing Locks

Module 12: Using Service Broker
Service Broker Overview
Creating Service Broker Objects
Sending and Receiving Messages

9- Core Foundations of Microsoft .NET 2.0 Development

Prerequisites
Before attending this course, students must have:

An understanding of the components of the .NET 2.0 Framework
An understanding of the components of typical .NET applications

Module 1: Implementing System Types and Interfaces
Examining Primary System Types
Working with Special System Types
Working with Interfaces

Module 2: Implementing Collections and Generics
Examining Collections and Collection Interfaces
Working with Primary Collection Types
Working with Generic Collections
Working with Specialized Collections
Working with Collection Base Classes

Module 3: Configuring and Installing Assemblies
Working with an Assembly
Sharing an Assembly by Using the Global Assembly Cache
Installing an Assembly by Using Installing Types
Configuring an Assembly by Using Configuration Type
Performing Installation Tasks

Module 4: Monitoring and Debugging Applications
Managing an Event Log
Working with Application Processes
Managing Application Performance
Debugging Applications
Tracing Applications
Embedding Management Information and Events

Module 5: Reading and Writing Files
Managing the File System
Working with Byte Streams
Compressing and Protecting Stream Information
Managing Application Data
Manipulating Strings Efficiently
Working with Regular Expressions

Module 6: Serializing Data
Generating Serialized Binary and Soap Formats
Generating Serialized XML Formats
Creating Custom Serialization Classes

Module 7: Implementing Delegates and Events
Controlling Interaction between Components by Using Delegates
Controlling Interaction between Components by Using Events

10- JAVA PROGRAMMING FUNDAMENTALS
Duration: 30 hours

Introduction
The Java Programming Fundamentals course teaches you how to write Java applications and applets. You will learn the Java language mechanics found in other programming languages, such as variables, iterations, control statements, methods and arrays. You will also discuss object-oriented theory as it relates to Java. You will create Graphical User Interfaces (GUIs) for both applications and applets, emphasizing components, layouts, and graphics. The course concludes with an in-depth study and implementation of the SDK 1.2 event delegation model, an essential element in further Java studies. You will also complete a course-long project to create an operational client/server messaging system.

Audience
Database developers, Internet application developers, database architects, middleware programmers, database administrators, Java developers, and client/server developers.

Prerequisites
Students must have a basic knowledge of programming fundamentals before taking this course.

Course Outline

Java Runtime Environment

- The Java Virtual Machine
- The Java 2 Software Development Kit
- Java Comments

Data Types, Variables and Operators

- Data Types
- Declaring Variables
- Variable Scope
- Casting
- Operators
- Automatic Casting

Control Statements

- Code Blocks
- Conditional Statements
- Iterative Statements (Loops)
- Assertions

Methods

- Java Methods
- Return Statements
- Calling a Method
- Parameters
- Pass by Value
- Overloading

Arrays

- What Is an Array?
- Initializing an Array
- Objects
- Using an Array
- Passing an Array to a Method
- Garbage Collection
- Command Line Parameters
- Hashing

Classes and Objects

- Object-Oriented Programming
- What Is an Object?
- Instance and Class Members
- Abstraction
- Object References

Inheritance

- What Is Inheritance?
- Overriding Methods
- Overridden Methods and Variables

Constructors

- What Is a Constructor?
- Using Constructors
- The Keyword this
- Constructor Process
- Constructors and Callbacks
- String and StringBuffer
- Wrapper Classes

Interfaces and Abstract Classes
- What Is an Interface?
- Polymorphism
- What Is an Abstract Class?

Packages and Access Modifiers
- Introduction to Packages and Access
- Modifiers
- Packages
- Access Modifiers
- Java 2 Application Programming Interface
- Encapsulation

Swing Components
- What Is the AWT?
- What Is Swing?
- Basic Swing Components
- Swing Containers
- JavaBeans

Layout Managers
- What Is a Layout Manager?
- FlowLayout
- GridLayout
- BorderLayout
- BoxLayout
- Combining Layouts
- Graphics in Java
- Graphics Class
- Color Class
- Font Class

The Event Delegation Model
- What Is an Event?
- JDK 1.0 Event Handling
- SDK 1.2 Event Handling

Inner Classes
- What Is an Inner Class?
- Inner Classes for Event Handling

Java Applets
- Programming Applets
- Applets and Web Browsers
- Converting an Application into an Applet
- Converting an Applet into an Application

Exceptions
- What Is an Exception?
- Handling Exceptions
- Creating User-Defined Exceptions
- Exception Handling Tips
- Exceptions and Inheritance

Creating Threads and Thread Methods
- What Are Threads?
- How Operating Systems Handle
- Multitasking

- Types of Threads in Java
- Creating Threads
- Thread Methods

Thread Synchronization
- What Is Thread Synchronization?
- Thread Racing
- Synchronized and the Object Monitor
- Thread Race Condition
- Sophisticated Thread Synchronization
- Stopping, Suspending and Resuming
- Threads
- Deadlocks

Streams and Serialization
- What Is a Stream?
- InputStream, OutputStream, Reader and Writer
- Files
- Stream Classes of java.io.*
- Serialization

Networking in Java
- What Is Networking?
- Connecting Computers Across the Internet
- Networking Classes of java.net.*
- The Java Client/Server Model
- Building the EchoServer
- Multithreading Your Client/Server Example

Java v2 Enterprise Edition

J2EE Technologies Overview
Components & containers N-tier architecture
How the container enables faster application development

JNDI
JNDI overview & API
Referencable and serializable interfaces
Using lookup, bind(), rebind(), list(), listBindings()
Creating and using subcontexts
Using FSContext as a practical example

JDBC
Java to accessing the database
Driver types
Statement, PreparedStatement and CallableStatement
Retrieving and using ResultSet Meta-data
Scrollable/Updatable ResultSets
Batch updates
DataSource types
Connection pools

Remote Method Invocation
Working with distributed objects
Creating the interfaces, stubs and skeletons
Creating and binding objects to the RMI registry
Calling remote objects from the client
RMI/IIOP for distributed applications

Java and CORBA
What is CORBA?
Using Java IDL
Creating and running a CORBA application

Enterprise Java Beans
A component architecture for distributed applications
Declarative middleware and container management
Session, Entity and Message-Driven EJBs
EJB lifecycles
Writing Stateless and Stateful Session Beans
Writing Entity Beans with Bean Managed Persistence
Writing Entity Beans with Container Managed Persistence
EJB deployment

Java Message Service
The JMS API
Pub/Sub and Point to Point
The JMS interfaces
Writing a program to utilise JMS

Servlets
Using HTTP Get and Post
Lifecycle methods
Cookies and URL rewriting
Session management
Chaining servlets

Java Server Pages
Separate content and presentation
JSP Tags
Using JavaBeans to simplify JSPs
Using JSPs with servlets
MVC (Model View Controller) pattern
Java Standard Tag Library (JSTL)

Deployment
Packaging web applications
Structure of web Applications
EAR, WAR and JAR usage
Application server deployment

J2EE Design
Design considerations in a distributed environment
Best practice with EJBs
EJB alternatives
J2EE patterns

12- Service Oriented Architecture

Course Outline:
Business drivers for SOA
SOA Concepts
What is a service
Loose-coupling and a service contract
Service-oriented integration
Enterprise Service Bus

Role of the Registry/Repository
SOA Governance
Service-oriented Development
SOA Security
SOA Management
SOA and Complementary technologies (e.g. BPM, BR, B2B, EP)
SOA and Standards
Expanding SOA throughout the Enterprise
Strategies for Deploying SOA
Additional customer SOA Examples

Course Objectives:
Introduce the broad concepts of SOA
Understand the value, opportunities and challenges of SOA adoption
Understand how SOA, BRM and BPM can work together
Explore the best practices for designing and deploying SOA

Advanced Course Outline:
SOA Concept Review
Architecture and Design Considerations for SOA Applications
Conceptual Architecture
Business Model for SOA
Information Model for SOA
Identifying Service Candidates
Service Interface Design
Service Document Design
Factoring granularity, scope, ownership, implementation into service types
Service Implementation Design
Service Composition
Information Transformation Techniques
Case Study
Conclusion

14- ADOBE Illustrator

Level 1

Creating Logos Using Simple Shapes
Choose New Document Settings
Create a Custom Workspace
Draw Basic Shapes with the Shape Tools
Draw Paths with the Pencil Tool

Enhancing Logos
Format Objects
Manipulate Objects
Insert Type

Creating Logos Using Custom Paths
Draw Paths with the Pen The Pen Tool
Modify Existing Shapes to Create New Shapes
Duplicate Objects
Apply Graphic Style

Creating a Logo with Type Special Effects
Apply Gradients to Type
Create Type on a Path
Apply an Envelope to Type

Creating an advertisement
Import a Graphic
Align ObjectApply Spot colors
Wrap Text
Export a File

Manipulating Body Type
Import Body Type
Format Type with Styles
Fix Spelling Errors
Find and Replace Text
Insert Typographic Characters

Exporting Graphics for the Web
Convert Colors to Web-Safe Colors
Create Slices
Add Interactivity to an SVG File
Exprt Web Graphics

Applying Color Management
Decide When to Use Color Management
Set Up Color Management

Outputting Documents
Print a Composite Proof
Create Color Seperations

Managing Assets with Adobe Bridge
Explore the Adobe Bridge Environment
Apply Metadata and Keywords to Assests in Adobe Bridge

Level 2

Creating Complex Illustrations
Create Shapes Using the Pathfinder Commands
Create Compound Paths
Offset Paths
Apply Effects
Create Symbols
Create Custom Pattern Brushes
Organize Objects with Layers
Modify Global Colors

Providing Support for PSD and PDF Files
Open Layered Photoshop Documents
Create an Adobe PDF file

Creating Vector Version of a Raster Graphic
Manually Trace Raster Images
Trace Artwork Automatically
Adjust the Results of a Tracing
Apply a Custom Preset
Convert a Tracing Object to Paths

Coloring Artwork Using Live Paint
Apply Paint Using Live Paint
Correct Gaps in Objects
Convert Objects to Live Paint Groups

Creating a Poster
Simplify Paths
Create Clipping Masks
Create 3D Effects
Share Graphic Styles

15- AUTODESK 3D Studio Max

Introduction
- Quick overview of Max's interface
- Adjust viewport size and layout
- Understand the coordinate system
- How the modifier stack works
- Use the tab and command panels
- Use the quad menus
- Understand the viewport navigation controls
- Basic object creation
- Spline creation
- Attaching splines and modifying
- Creating objects with standard primitives
- Naming and colour objects
- Understanding the concepts around Bezier Splines
- Using Booleans
- Using Shapemerge
- Lofting
- Understanding various modelling methods
- Using the tools set effectively
- Tricks and tips for economical poly modelling

Materials and Mapping

- Describe the material editor
- Adjust the material editor settings
- Creating basic materials and applying to objects
- Creating and adding to the material editor
- Using the asset browser
- Using various map channels
- Using bitmaps
- Understanding UVW mapping
- Address difficult mapping situations
- Creating composite material
- Blending materials
- Overview of mapping channels

Lighting

- Learn basic lighting principles
- Know the difference between real world and computer lighting
- Understand traditional lighting setups
- Recognise different light types
- Understand various light parameters
- Create lights
- Modify lights
- Use the light lister
- Understand how to plan lighting for a scene in 3ds Max
- Understand the use of three point lighting to light an object
- Use lighting to establish mood
- Recognise some of the challenges in lighting specific types of objects
- Understand considerations for interior lighting
- Understand considerations for exterior lighting
- Understanding the importance of shadows in defining the scene and the mood
- Create volumetric light beams with dust
- Create ambient light inside a large interior

Animation

- Character animation concepts
- Understanding Forward Kinematics
- Principles of Inverse Kinematics
- Parent and Child link relationships
- Constraining rotation
- Overview of Animation tools
- Set Key Animation and Autokey
- Introduction to bones
- Spline IK

17- ADOBE Photoshop - Level 1

Exploring Photoshop

Explore the Photoshop Environment
Customize the Photoshop Workspace with Presets
Customize Menus
Explore Adobe Bridge
Work with Photoshop File Properties

Painting and Retouching Images

Paint an Object

Retouch an Image
Create a Gradient
Create a Pattern
Create a Vector Object
Apply Metadata and Keywords
Output to Print

Enhancing an Image
Adjust the Tonal Range of an Image
Use the Exposure Dialog Box
Work with Filters

Working with Layers and Selections
Create and Use Layers
Create and Use Smart Objects
Create Layer Styles
Work with Multiple Layers

Create and Modify Selections - Level 2

Creating Images for the Web
Optimize Images for the Web
Slice Images
Create an Animation in Photoshop

Preparing for Cross-Platform Viewing of Images
Explore Web Color Management
Compensate for Display Differences Across Platforms

Managing Color
Apply Color Management Settings
Configure Color Settings
Apply a Color Handling Method
Correct Image Color

Using Advanced Image and Video Support
Create High Dynamic Range Images
Use the Camera Raw Format
Preview an Image on a Video Monitor

Automating Photoshop Tasks
Automate Photoshop Tasks
Using Scripts in Photoshop

Integrating Variables with Photoshop
Create Data Sets Using Variables

18- ADOBE InDesign

Lesson 1: Quick Start Tour of Adobe InDesign
Creating Guides Using the Line Tool
Using Photoshop® Files in InDesign
Using Illustrator® Files in InDesign
Creating a Shadow & Adding a Logo
Placing & Stylizing Text
Entering Text & Images into a Table
Changing Display Quality & Multiple Text Layers
Exporting an InDesign File as a PDF

Lesson 2: Letting InDesign Work for you
Introducing Document Preferences
General, Type & Advanced Type Preferences
Units, Increments & Grids Preferences
Guides, Pasteboards, Spelling & Story Editor Preferences
Display Performance & Appearance of Black Preferences
File Handling Preferences & Type Tool Options
Grouping Palettes into Clusters
Setting Palette Options & Sliding Palettes
Showing/Hiding Palettes with Keyboard Shortcuts
Creating & Modifying Keyboard Shortcuts
Creating New Layer & Workspace Shortcuts

Lesson 3: Documents, Presets & Dependencies
Creating a New Document
Saving & Editing Document Presets
Working with File Types & Extensions
Opening Files
Fixing Dependencies Automatically
Fixing Dependencies Manually

Lesson 4: Navigation & Adobe Bridge
Adjusting Page Size
Using the Zoom Tool
Scrolling the Page & Changing View Size
Using the Navigator Palette
Introducing Adobe Bridge
Viewing Files in Bridge
Saving a Workspace, Rating & Labeling
Filtering, Reordering & Sorting Files in Bridge
Viewing Images in a Slideshow

Lesson 5: Letting InDesign Guide you
Creating Margins & Columns
Understanding Master Pages
Setting Up Rulers
Creating Guides
Understanding Guides as Objects
Using Control Palette Calculations
Customizing Guide Colors
Placing Guides on Layers
Placing Guides on Multiple Pages
Using Preview Modes

Lesson 6: Beginning your Layout Design
Saving a Document
When Not to Turn on Allow Pages to Shuffle
The Rectangle Tool vs. the Rectangle Frame Tool
Creating Frames for Text & Graphics
Organizing Elements in the Layers Palette
Changing the Basic Paragraph Style
Selecting, Adjusting & Filling Text Frames

Lesson 7: Importing, Pouring, Flowing & Automation
Setting up Microsoft Word Import Options
Setting Options for Placing Imported Text
Placing & Directing Overflow Text
Adding Pages to the Document

Creating a Layout & Duplicating Text Frames
Setting up Text Links Across Multiple Frames
Pre-Linking & Adjusting Text Frame Options
Using Autoflow for Automatic Documents

Lesson 8: Type Formatting
Selecting a Font
Adjusting Type Size & Leading
Exploring More Character Options
Adjusting Tracking
Introducing Kerning & the Eyedropper Tool
Adjusting Kerning & Baseline Shift

Lesson 9: Paragraph Formatting & Design
Hyphenating Text
Adjusting Paragraph Spacing
Creating a Bulleted List
Indenting Paragraphs Manually
Using Drop Caps

Lesson 10: The Basics of Typography
Inserting Special Characters
Inserting White Spaces
Using Notes
Applying Optical Margin Alignment to Linked Frames
Applying Optical Margin Alignment to an Object Style

Lesson 11: Opentype® & Typography
Using Ligatures
Exploring OpenType Fonts
Using Discretionary Ligatures & Fractions
Using Proportional Oldstyle & Ordinals
Using Small Caps & Force Line Break
Exploring Glyphs
Glyph Palette Options & Applying Glyphs

Lesson 12: Basic Paragraph Style Sheets
Creating a New Style Sheet
Linking Style Sheets
The Advantages of Linked Style Sheets
Importing Style Sheets from Other Documents
Redefining a Style

Lesson 13: Graphic Frames & Object Styles
Creating Basic Graphic Frames
Adding & Aligning a Stroke to a Graphic Frame
Saving a New Object Style
Saving a Thin Line as a New Object Style
Arranging & Aligning Objects
Copying Shapes & Applying Rich Black
Editing the Shape & Size of Objects in Sequence
Transform Again Individually to Duplicate Frames
Converting Shapes

Lesson 14: Importing Vector Graphics
Importing Illustrator Files
The Main Selection Tool vs. the Direct Selection Tool
Scaling an Image Numerically

Moving an Anchor Point, Rotating, Scaling & Moving
Fitting Content Proportionally
Using Shortcuts to Scale a Graphic
Importing an Illustrator File from Bridge
Importing an Image & Changing Its Transparency

Lesson 15: Adobe Photoshop® Import & Creativity
Importing & Adjusting Photoshop Images
Utilizing the Links Palette
Drag & Drop from Bridge & Fill Frame Proportionally
Adjusting Display Performance
Placing a Background Image
Drawing a Line & Adding an Illustrator Title
Nudging an Image with the Arrow Keys
Accessing Layers Using Object Layer Options
Cropping & Viewing Layers

Lesson 16: Layered Design & Text Wrap
Bringing in Separate Images Defined by One Image
Placing a Background Image & Changing Text Color
Organizing Layers & Placing a Title
Customizing a Title Layout Design
Creating an Advanced Layered Design
Using Photoshop Clipping Paths
Using Text Wrap

Lesson 17: Creating & Storing Color
Introducing the Swatches & Color Palettes
Creating Color & Tint Swatches
Working with Spot Colors
Creating Mixed Ink Swatches & Groups
Using Gradients & Making a New Gradient Swatch
Adding Small Color Reference Frames to Images

Lesson 18: Intelligent Type Styles
Adding & Positioning a Text Frame
Formatting & Aligning Text
Creating Paragraph Styles
Editing Style Sheets for Automation Using Next Styles
Duplicating a Text Frame & Replacing the Text
Creating a Tint Swatch to Change Text Color

Lesson 19: Baseline Grid Control
Creating an Image Box & Placing the Image
Importing & Placing a Layered PDF File
Using the Paste In Place Command
Dragging & Dropping Images from Bridge
Introducing Document & Baseline Grids
Setting Grid Preferences & Snapping into Alignment

Lesson 20: Powerful Nested Styles & Snippets
Snapping to Baseline Grid
Creating Character Style Sheets
Creating Nested Style Sheets
Adjusting the Optical Margin Alignment
Introducing Snippets
Working with Snippets

Lesson 21: Compounds, Shadows & Transparency
Setting Transparency Options
Applying a Drop Shadow
Using the Redefine Object Style Command
Working with Compound Paths
Using the Pathfinder Palette
Final Comments & Credits

19- ADOBE Dreamweaver MX 2004

Internet Access and HTML
Internet Access and HTML
Planning Web Sites
Viewing and Managing HTML Code

Creating a Web Site Structure on your Local Machine
Explore Dreamweaver Basics
Define a Local Site
Add HTML Pages to a Local Site
Set Document Properties

Adding Text Content to a Site
Import text Content
Clean Microsoft Word-generated HTML
Add Structural Elements to HTML Documents
Insert Date and Time Data
Add Special Characters to HTML Documents
Alter HTML Tags

Formatting Text
Create Text
Alter Font and Text Characteristics
Familiarize Yourself with CSS
Create and Apply CSS Styles
Export CSS Styles
Create an External Style Sheet
Applying Styles to Multiple Pages
Edit Styles

Working With Images
Insert Images into a Web Page
Modify Image Properties
Edit Images
Optimize Images with Macromedia Fireworks
Add a Flash Movie to a Dreamweaver File

Testing, Updating, and Maintaining a Site
Check Spelling and Accessibility
Check and Fix Links
Check Browser Compatibility
Run Site Reports
Add a Remote Site
Upload Files to a Remote Site
Synchronize Files

History Panels
Recording Steps
Saving the Recorded Step in the Command Menu

Add a Flash Movie
Add Flash Buttons and Text

Adding Navigation to a Site
Link to Files in Your Site
Link to a Named Anchor
Link to an Email Address
Add Links to an Image
Alter Link Properties
Link to Another Web Site
Update Links
Create Rollover Images
Create Navigation Bar

Structuring Pages
Examine Page Structure
Present Data in Tables
Structure Pages with Tables in Layout Mode
Import a Delimited Text File
Modify Tables
Structure Pages with Layers

Create Layers
Layers and Behaviors
Control Layers Dynamically
Convert Between Tables and Layers

Streamlining Workflow with Libraries and Templates
Add Library Items to Pages
Modify and Update Library Items
Create and Apply Site Templates
Modify Templates

Templates Containing Repeating Regions
Add Editable Regions

Developing Forms
Create a Form
Set Focus in a Form

20- Business Writing

Module 1
- Increase your documents' clarity by eliminating wordiness
- Emphasize important ideas by placing key words in power positions
- Use active and passive voice effectively
- Ensure precise, unambiguous wording
- Increase reader understanding by translating jargon and avoiding pompous wording.

Module 2
- Use transitional words to connect ideas and improve flow
- Use headings and subheadings to move the reader from one point to another
- Use numbered and bulleted lists effectively to make information more accessible
- Use parallel structure to enhance flow and emphasize relationships of ideas
- Use paragraphs to separate ideas

Module 3
- Reduce writing and re-writing time with an efficient four-step writing process.

- use your knowledge of the document's purpose, goal, and audience to:
- Write effective subject headings, beginnings, and endings
  Write appropriately for different audiences
  Gain cooperation and build goodwill with reader-centered wording

Module 4

- Capture your main ideas in a Zero Draft
- Choose an appropriate organizational pattern for every on-the-job document you write

21- IPTV and Digital Rights Management

Course Objectives

Describe the standard encodings for digital Television
Appreciate the mechanisms used for digital compression of Television
Identify how to multiplex channels, video pictures and sound within a stream
Deploy the scrambling used for Conditional Access systems
Enhance compression with MPEG-4 and H.264
Compare the effectiveness of the different compression approaches
Select an appropriate Digital Rights Management system for deployment

Digital Television Systems

Colour Television
NTSC, PAL, SECAM
Digital Video Broadcasting
DVB-T, DVP-S, DVB-C, DVB-IPI
MPEG Formats
4:2:2, 4:2:0, CIF, QSIF
Transport systems

MPEG Encoding

Source Encoding
MPEG Compression Concepts
Prediction and Interpolation
Reordering
Motion: Prediction, estimation and compensation
I, P and B Pictures
MPEG Levels and Profiles
Audio Compression
Framing Formats

Multiplexing of Signals

Pacetised Element Stream(PES)
Decode Time Stamp (DTS)
Presentation Time Stamp (PTS)
System Clock Reference (SCR)
Quantization of Program and Transport Streams
MPEG Transport Packet
Program Allocation Table (PAT)
Program Map Table (PMT)
Conditional Access Table (CAT)

Channel Coding and Forward Error Recovery

Energy Dispersal
Reed-Solomon Coding
Convolution Coding
Interleaving

Trellis Decoding
Temporal Spreading

Conditional Access and Forward Error Recovery
Conditional Access Mechanisms
Encryption
Entitlement Management Messages (EMM)
Entitlement Control Messages (ECM)
Encoding ECM and EMM into the transport stream

MPEG-4 and H.264 Standards
Related standards: JPEG and JPEG2000
Video Objects (VO)
Video Object Plane (VOP)
I-VOP, P-VOP, B-VOP
Short Header Mode
Motion Vectors
Video Packet Structure
Interlacing
Motion Compensation of VOP
Static Sprite Coding
Advanced Coding Efficiency (ACE)
Texture Coding
Studio Quality Encoding

H.264 Part 10
Syntax of Encoding
H.264 Modes: I, P, B, SP and SI
Slices and Macro Blocks
Macro Prediction
Intra Prediction
Luma, Chroma and Signalling prediction
Deblocking Filter
Transform Quantization
Reordering
Entropy Coding
Main Profile
B Slices and Reference Pictures
Weighted Prediction
Context-based Adaptive Binary Arithmetic Coding (CABAC)
Extended Profiles
SP and SI Slices
Stream Switching
H.264 Transport
Network Abstraction Layer (NAL)
Parameter Sets
Transmission and Storage of NAC units
MPEG-2/MPEG-4/H.264 Comparisons

Digital Rights Management
DRM Design Decision Metric
Expression, Authentication, Protection
DRM Principles
Vendor Broker Services
Repositories
Purchaser brokers
Payment Models
Rights Management Service

Planning a DRM Service

22- SCORM Development

Introduction to SCORM 2004
Basic ADL/SCORM Concepts and Definitions
Overview of SCORM 2004
Differences and similarities between SCORM 1.2 and 2004
The Role of SCORM in Modern Courseware Development

Modern Courseware Technologies
Course Development Media:
Images, Audio, Video, Simulations, Mobile Code
Course Development/Instructional Design Tools:
How to choose the right tools?
Courseware Delivery Technologies:
Current State, Trends and Issues

SCORM Essentials
Reusable Learning Objects (RLOs): What constitutes Assets and Sharable Content Objects (SCOs)?
Repositories: Melting pots of reusable content
Learning Management Systems (LMS): How to choose one?
Expanding your options via a Learning Content Management System (LCMS)
What is Meta-data?
ADL Registry: Discovery of specific content resources

Meta-data
What is Meta-data?
How to read Meta-data files
How to develop Meta-data using tools and templates
Lab: Developing Meta-data with Metadata Generator Pro
Lab: Developing Meta-data with RELOAD
Lab: Developing Meta-data with templates
Content repositories definition and usage
What is the future vision for Meta-data use? CORDRA, IMR, Cybrarian, and N-SCORM
Rights Management: Whose asset is it anyway?

Runtime SCORM: What makes a SCO a SCO?
Introduction to SCORM 2004 API and related 3rd party APIs
Lab: The Handshake - Connecting your SCO to the LMS
Bookmarking using navigation and browser events
Lab: Creating bookmarks and responding to bookmark events
Completion status and session time within a SCO
Lab: Create a SCO that sets completion status and session time
Tracking student performance and assessment scoring
Lab: Scoring using Score.raw and Objectives

Manifest and Sequencing
What is the course manifest?
Reading a 2004 manifest file
Simple Sequencing: Control, Rules, and Objectives
The Activity Tree: Activity Path, Roll-up, and Clusters
Lab: Create a manifest using RELOAD
How to influence sequencing outside of the SCO

Advanced Content Issues
Mobile code and Security issues
How to get content signed and by whom

Cross-domain scripting issues and solutions
FLASH™ and SCORM 2004
Lab: Connecting to the LMS API Adapter using FLASH
S1000D and SCORM

Simulations in SCORM
Building simulations in SCORM 2004
Defining a simulation infrastructure for distributed learning
Network communications with HLA/DIS simulations
Student-to-student and student-to-instructor communication

Designing for SCORM
Creating a SCORM-compliant course: A sample blueprint
Key Design Considerations: Breaking down the content without "breaking it"
SCORM Tools and Development Packages
Redesigning for SCORM: Things to consider
Service specific requirements for SCORM
SCORM Testing and Certification: Let us walk you through the process!

Building a Sample Course: Putting it all Together!
Lab: Creating a multiple SCO course
Directory structure and assigning Meta-data
Lab: Assembling and sequencing the SCOs
Lab: Connecting the SCOs to the LMS
Lab: Tracking the student's progress and score

Testing your SCORM Package
What does the test suite test?
Known issues and workarounds
Lab: Installing and using the SCORM test suites
Lab: Reading the test log

24- Brand Management

Foundations to branding
Aligning the brand business value principles
The product life-cycle vs. the brand funnel

The Brand Manager
Shifting your product paradigm to a branding mindset
Role, responsibilities & expectations of the brand manager

Understanding the Customer insights
Developing a brand value map
Understanding why people buy
Strategic market segmentation
Determining and understanding the territory you own

Building a Brand With a Personality
Developing the reason to believe in the brand
Determine the heart, soul and mind of the brand
Understanding the brands reach, energy and focus

Developing a Brand Positioning Strategy
Implementing structured competitor analysis
Positioning and differentiating the product
Using a Proposition Generator to determine the core and clusters of the brand

Planning Brand Strategy
Your brand as a strategic asset
Measuring brand equity
Developing a brand plan - strategic, tactical and operational
Developing and planning competitive branding strategies

Brand Extensions
Planning brand extension launch campaigns
Brand advertising and promotional strategies
Measuring brand profitability
Ensuring new brand success

26- Marketing

The Marketing Concept
Scope & Goals
Marketing evolution

Corporate Position
The Marketing function & its relations with other corporate functions
Marketing Vs. PR
Marketing Vs. Sales
The Cycle
The integration of processes

The Marketing Mix
Defining the 4P's / 7P's
Modeling your Marketing Mix
Optimizing your Marketing Mix

Product:
Product / service
Types of products
Managing Product's life cycle
The life cycle concept
Managing these stages

Price:
Meaning of Price
Pricing Objectives
Elasticity of demand
Types of Costs
Regaining Price Control

Promotion/Communication:
Different types of promotion
Advertising Vs. Promotion
Communication Process
The essence of communication
Communication models & barriers
Getting your message through
Distinguishing between strategic thinking & planning and tactical thinking
Concepts of strategic thinking & planning
Creating strategic scenarios
Evaluating strategic options & prioritizing initiatives
Developing alternatives & selecting the best one
From strategic thinking to strategic marketing

Place/ distribution:
Distribution Strategy
Types of Distribution channels
The best channel

Market analysis & planning methodologies
Why marketing planning?
Objectives of the Marketing Plan
Standard Planning Framework
Analyzing the environment & the competition
PEST; SWOT & Five Forces Analysis Methods

Building a marketing plan
The Contents & Structure of the Marketing Plan
Mistakes to avoid

Segmentation & Positioning
Criteria for successful Segmentation
The basis of segmentation
The steps
Effective positioning
Perceptual Mapping
Product differentiation

Overview of Marketing Research
Need for MR
Process (incl. methods etc…)

Overview of Marketing - International
International Organizations
Strategies to implement

Overview of CRM - Customer Relationship Management
Need for CRM
CRM benefits
Mass Marketing Vs. Relationship Marketing
One to One Marketing

27- Sales and distribution

Introduction
The roles & responsibilities of the sales person
The sales person's grooming & appearance
The power of creative thinking in sales

Prospecting
Where & how to find prospects
Cold Calling
Using the telephone for effective selling

Working with customers
What customers really want
Relationship selling
Dealing with difficult customers

The sales presentation
Before the presentation
During the presentation – Presentation do's & don'ts

After the presentation

Closing the sale
Time to close
The rules of closing
Tips, tactics & common closing tricks & techniques
Common closing mistakes

Handling objections
Identifying objections
Responding to objections
Common tricks & methods

Communication skills in the sales process
Non-verbal communication skills
Listening skills

28- Human Resources Training

Understanding the HRM environment
Basic definitions
Management quiz
The dynamics of HRM environment
The new HR mega Trends
How will new technologies affect the HR function?

Developing the HR Plan
The 5-step procedure

The Recruitment & Selection Process
Recruitment
Elements of an effective process
Types of recruitment
Cost of recruitment
Mistakes to avoid
Selection
The Competency-based approach
The Tools
The application form, the CV, Graphology, tests, interviews & background checks
Types of tests
Types of Interviews
Common errors of interviewers
A complete guide to interviewing

Defining, Describing & Analyzing jobs
The elements
The procedures
Job Analysis
The interview method
The observation method

Human Resource Planning & Succession Planning
HR Planning
Workforce planning
The models & processes
Special issues in WF planning
Setting a strategic direction
Competencies needed

Succession Planning
What is it & why do we need it?
The success factors
The process

Human Resources Development
Training & Development
New employee orientation
Evaluating performance
The different kinds & approaches
Training Needs Analysis
Charts, forms, questionnaires & observation
On-the-job vs. classroom training
Evaluation methods & follow up

Compensation & Incentives
Compensation
The components of a compensation system
The different types
Incentives
Merit pay
Gain-sharing
Profit sharing
Stock options
Employee Stock Ownership Plan (ESOP)

29- Web Usability By Design
Synopsis
This is a short course teaching website usability through the application of engineering principles to web site design. Its primary objective is enable organisations to formulate and implement a web site strategy which will raise their website's productivity well above the norm.

This web site usability training course is inspired by, and organised around a critical reading of Jakob Nielson's book, Designing Web Usability, New Riders, 2000.

The course is, however, written and delivered by a team of experienced web site design professionals, with their own perspectives on technical good practice and commercial feasibility.

Suitable for
- Web site design professionals who want attract more visitors to their web site and convert a higher proportion of those visitors into paying customers.
- Technical managers and commercial directors who want to know why their web site is under-performing and how to dramatically raise its return on investment, through the pragmatic application of web usability techniques.
- Web site content providers and editors who want to build usability methods into their everyday practice.

Delivery
- This usability seminar is, like all of our web site design training, an instructor-led course which can be delivered for in-house company groups or for individuals on public courses.
- Unlike our purely technical web site design courses, its emphasis is on discovery, discussion and evaluation of the technologies and concepts involved rather than on practical/craft skills.

Contents:
- **Introduction to web site usability**
- Pragmatism and methodology
- Art versus engineering
- Why everyone gets web site design wrong the first time
- Page design issues in web usability

- Screen space: the scarcest resource
- User controlled presentation
- Screen resolution
- Standard and non-standard content
- Application versions
- Data lifetimes
- Response times
- Connections and partial downloads
- Link descriptions
- Link titles
- Link colours
- Link consistency and site structure
- Link expectations
- Outbound links
- Inbound links
- Linking to subscriptions and registrations
- Linking from adverts
- Stylesheets for consistency
- Stylesheets for separating content from presentation
- Fonts and font sizes
- Text size
- Frames: just say no
- Frames: more reasons to say no
- If you must use frames
- Printing issues

Content issues in web site usability

- Content is critical and web content is different
- The value of an editor
- Discursive style
- Keeping texts short
- Checking and copy editing
- Scannability
- Plain English
- Managing long texts by chunking
- Page titles
- Headings, sub-headings, and pull quotes
- Legibility
- Understanding image formats
- Reducing image file sizes
- Multimedia and plugins
- Animation
- Animation pitfalls
- Video
- Audio
- Downloading and streaming
- 3D
- Conclusion: the attention economy

Navigation and searching in web site usability

- From page design to site design
- Homepages are over-estimated
- Splash screens — just say no
- Navigation: the three big questions
- Where am I?
- Where have I been?
- Where can I go?
- Creating and revealing site structure

- Reducing navigational clutter
- Managing subsites or sections
- Search-dominant versus link-dominant users
- Implementing searching
- Presenting search results
- Search term usage
- Search destination design
- Presenting URLs and domain names
- Archival and old URLs
- Executable links and URLs

Web usability testing
- Statistics and methods
- Whom to test
- When and where to test
- The test cycle
- Conducting a test
- Observing a test
- Interpreting and using results
- Using results

Intranets, accessibility, internationalization and usability
- Extranets
- Intranets
- Accessibility
- Visual disabilities
- Auditory and speech disabilities
- Motor and cognitive disabilities
- Internationalization and cultural difference