

Participants

This seminar is aimed at IT managers and their immediate staff who wish to obtain the information needed to define IT strategies.

Pre-requisites

Knowledge in computing.

Next sessions

IT Technologies, overview

OBJECTIVES

A clear and precise overview covering the very latest IT and telecommunications advances, their foreseeable short and medium-term evolutions, their impact on companies and users. The main objectives of this seminar include: Analysing and comparing the main network solutions. Constructing multi-service networks. Making them secure. Mastering Internet technologies. Measuring the impact of digital media and e-commerce. Integrating the object approach in development methods. Putting in place rich-client and Web applications. Selecting a development process suited to the digital technologies.

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| 1) Telecommunications: market, major solutions | 7) XML and Web services |
| 2) Network architectures | 8) Open Source software |
| 3) Network technologies | 9) EAI and Urbanisation |
| 4) Security | 10) Application servers |
| 5) The IS infrastructure | 11) Java and .Net technologies |
| 6) Web technology and its applications | 12) Data servers |

1) Telecommunications: market, major solutions

- The telecommunications market: voice, data, traffic.
- The industry players and standardisation.
- The impact of deregulation. The legal principles.

2) Network architectures

Access networks

- xDSL solutions and their evolutions. Voice and image flow rates, distances, and transport.
- Cable-based techniques. The optical local loop.
- The emergence of radio networks: WiFi, WiMax, Mesh.

Company networks

- Local network architecture. The extended family of Fast Ethernet, switched Ethernet and Gigabit Ethernet. Changing over to virtual networks (VLANs).

Operators' networks

- ATM for constructing the core of Frame Relay and multi-service networks. Changing over to IP architecture. IP signalling and controls. The service guarantee. The demand for virtual private networks (VPNs).

Mobile telephone networks

- Cellular networks: EDGE, UMTS, HSDPA. L4G.
- The mass arrival of local mobile telephone networks Wifi (802.11 a/b/e/g/n) and Bluetooth (802.15), ZigBee and UWB. Handover, roaming, mobility management.
- WIMAX 802.16 networks.

3) Network technologies

ATM and frame relays

- Frame switching. The protocols used.
- ATM and service quality. Implementation.

IP technology

- Packet switching. Internet routing.
- IP, UDP and TCP protocols.
- SMTP, FTP applications, Peer-to-Peer.
- Internet service quality: the DiffServ model.
- Telephony over IP and video transport.

The MPLS solution

- Label switching. Utilizing explicit paths (LSPs).
- LDP, RSVP-TE, CR-LDP protocols. QoS.

Overview

- The interaction between networks and applications.
- Internet metrology, diagnostics.
- Which technologies and services for tomorrow?
- The social and economic aspect of networks.

4) Security

- Issues: physical architecture, protocols, encoding, organisation. From the firewall to the IDS.
- Secured VPNs: IPSEC or SSH/SSL.
- Mechanisms for digital signatures.

- The infrastructures for managing and distributing keys.

5) The IS infrastructure

- The state of the art. From the thin client workstation to the centralised server.
- The new operating systems, the new types of workstations, mobile phones and PDAs.

6) Web technology and its applications

- Internet developments. Structure of applications.
- The three-tier architecture. Application components.
- The structuring of documents. PDF, XHTML, Web 2.0.
- RIA Technologies (Flex, Flash, Silverlight, Java), RDA (Air, JavaFX), HTML5, xHTML. The trends.
- What are the features of a company portal? Secured access, open connectors, profile management and parameter setting. The market offers.

7) XML and Web services

- Presentation of XML, the XSLT transformation engines and the XML parsers (Xalan, Sabloton, etc). XML SGBDs Web services.
- The principle defined by the W3C. SOAP, UDDI and WSDL. Access protocol, mode of operation. The products offer.

8) Open Source software

- Genesis of the main Open Source Software.
- The guarantees of security and long life.
- Linux server or client? Apache. Development (PHP, Eclipse, etc.). Databases (MySQL, PostgreSQL). CMS.

9) EAI and Urbanisation

- Enterprise Application Integration. The market offers. The components of an EAI solution.

10) Application servers

- Application Intranet and application servers. Features.
- Application server offers: IBM, Oracle...
- Cloud Computing Architectures: Private et Public.

11) Java and .Net technologies

- The hardware platform portability concept. JavaBeans and RMI. Access to databases (JDBC). Java APIs. The JEE platform. Adopting SOAP. Design Patterns. Struts logical architecture.
- Microsoft's .Net architecture. Framework, Enterprise Server, ASP .Net, Common Language Runtime, etc. Why Microsoft's middleware object approach is so successful. Windows 2008, .Net 3.5.

12) Data servers

- The market and the offers, IBM, Oracle, Microsoft.
- User-oriented systems. Types of multi-dimensional storage (MOLAP, ROLAP, HOLAP). The client tool families.
- DataWeb. The under-lying technologies.