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ETS

Course Profile

Executive Briefing on Telecommunications

ETS307

Duration: 1 day

Objectives:

- E**xplain the key concepts of telecommunication systems, and their interactions with the business requirements of an organisation.
- D**escribe the traditional circuit switched networks and contrast them with the modern packet switched technologies.
- E**xplain both fixed and wireless networks.

Who should attend:

Any executive requiring a greater understanding of the impact of telecommunications on the business environment.

Pre-requisites:

None.

Follow-on courses:

None.

Course Style:

The course is presented as a mixture of explanation and discussion, with questions and contributions from delegates being especially welcome. The briefing concludes with a discussion on key business issues.



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The Physical Components

The building blocks of the traditional telephone network are described to provide an understanding of the main components. The impact of modern technologies on businesses is described.

Telephony Components

- Public Switched Telephone Network
- Telephones and Terminals
- Exchanges and Switches
- The Private Branch Exchange
- The Local Loop
- Trunks

Analogue and Digital Systems Signal and Noise

- Attenuation and Amplifiers
- Repeaters
- Pulse Code Modulation
- Codecs
- Companding
- ISDN

The Multiplexing Hierarchies

- Multiplexing
- The PDH Access Network
- The SDH Core Network

Physical Transmission

- Cables
- Optical Fibre
- Dense Wave Division Multiplexing
- Repeaters
- Optical Amplifiers
- Optical Switches and Routers
- Wireless



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The Logical Structure

This section covers the logical components of a telephone network, describing the impact of common channel signalling, and intelligent networks.

Transmission	Local Loop Trunks
Switching	Space Switching Time Switching
Routing	Static Routing Dynamic Routing
Signalling	Access Signalling Network Signalling (SS7) Private Signalling
Network Management	Traditional Network Management (FCAPS) Telecommunications Management Network
Intelligent Networks	The Bell Model The ITU Model
Billing	The Billing Process

The Industry

The main players in the industry are described

- Suppliers
- Operators
- Customers
- Regulators
- Standards Organisations



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ISDN

The impact of ISDN on business use is described in this section.

Digitising the Local Loop

The Basic Rate Interface

The Primary Rate Interface

ISDN Services

Access Technologies

This section contains a brief overview of other technologies that may be used to replace the traditional Local Loop and their impact.

DSL

Cable Modems

Wireless Local Loop

Satellites

Wireless Telephony

This section explains the technologies used in wireless networks, and future developments.

Principles of Wireless Communications Cordless Telephony

Home Networks (Bluetooth)

Wireless PBXs (DECT)

Cellular Telephony

Analogue

Digital (GSM)

Third Generation (UMTS)



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Packet Networks

The objectives of convergence are explained. The methods of overcoming the quality of service issues created by carrying telephony over packet networks are described.

Convergence	Voice Quality of Service Data Quality of Service Quality of Service methods
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Voice over Frame Relay	Priority Systems
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Voice over ATM ATM Adaptation Layers	ATM Quality of Service ATM Signalling
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Voice over IP	Voice Vcoders Voice Transmission Reservation Service Differentiated Service IP over ATM IP over MPLS
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Telephony over IP	Signalling over IP Billing
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Computer Integrated Telephony	Voice over DSL
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Business Issues

The briefing will conclude with a discussion of the key business issues, and how they are impacted by the technology described above. This will include comparison of the traditional approach (TDM) to voice with voice over packet networks.



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