Voice Systems

ITS 220
Definitions

• CPE - Customer Premise Equipment
• From the reading:
  – Servers
  – Clients
  – Local networking
  – Wide-area Networking
    • Multiple paths from the enterprise to the PSTN (for mid-to-large businesses)
Rationale

- Placed between End-Users and CO connections
- Provide on-premise functions
- Make cost-efficient use of CO connections
Different Types…

- **PBX - Private Branch Exchange**
  - Full Premise Based Switching
- **Key System**
  - Smaller System, simplified administration and use
  - In practice Key Systems today are “hybrids”
- **CENTREX**
  - PBX functionality, but implemented in the Central Office Switch
PBX “Block Diagram”

- Single-LinePhones
- ElectronicPhones
- AttendantConsole
- Messaging
- LINES
- PBX
- Switching
- System or
- “Fabric”
- TRUNKS
- Administration
- Maintenance
- SMDR
- CTI
- Local
  Switched
  Access
- IXC
  Special
  Access
- Private
  Lines
Packet Switching?

- Analog Phones
- VoIP Phone
- PBX Switching System
- T R U N K S
- Voice Processing
- L I N E S
Handling Inbound Calls

• Routing Calls
  – Attendant
  – Direct Inward Dialing (DID)
• Handling Missed Calls
  – Call Forwarding -- General
  – Call Forwarding -- Busy/No-Answer
Distributing Calls

- Hunt Groups
- Queuing
- UCD
  - Universal Call Distributor
- ACDs
  - Specialized PBX software for inbound call handling
Handling Outbound Calls

• Call destination restrictions
• Least cost route selection
• Automatic redial
Signaling Call Information

- **Calling number**
  - ANI - Automatic Number Identification
    - Used in “800” services
  - Caller ID
    - Retail-level “CLASS” service
- **Called Number**
  - DNIS - Dialed Number Identification Service
    - Used in “800” service
  - DID - Direct Inward Dialing
    - CO to PBX Trunk Signaling
PBX Capacity

• Traffic (usually measured in call minutes per hour)
  – How Many Simultaneous Calls
• Processor
  – Total Calling Volume
  – Busy Hour Call Attempts
• Physical Interfaces
  – Stations and Trunks
“Programming a PBX”

• Moves, Adds, and Changes (MAC)
  – Establish New Service
  – Disconnect Service
  – Change Features On Existing Service
Adding Single Line Station

- Physical Install
- Assign Extension Number
- Assign Class of Service and Other Features
  - Often uses a template (or “Table”)

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
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Adding an Electronic Set

- Physical Installation
- Define Feature Buttons on the Digital Phone
- Define Line Appearance Buttons
- Assign Extension(s) to Line Appearances
- Assign Class of Service
Button Assignments

A
B
C

1
2
3

1 2 3 4 5 6 7 8 9 *
0 #
Button Assignments

A
B
C

1
2
3

Hold

Xfer

1
2
3
4
5
6
7
8
9
*
0
#
Extension Assignments