Improving Communications in Healthcare
Mitel

Core Focus and Pedigree in Telephony

- Over 30 years in the business of voice communications
- Mitel offers a single platform that builds upon its rich heritage in the voice market
- Mitel focuses on its core competency - voice
- As Mitel progresses down the path of IPT, innovations in applications and features occur organically
- Mitel also partners with innovative applications companies that extend Mitel’s offering into its key markets, ensuring a rich integration with the core platform and minimising complexity
The Importance of Telephony

- Main vehicle of communications next to person to person

- Can create a positive impression of service, or if handled improperly, a negative one

- Advances in communications can help to improve operations and service delivery

- Voice over IP signifies a new way of delivering voice over the same network as data

- New applications are now possible by bringing voice and data together

- Voice Over IP means flexibility
The Mitel 3300 IP Communication Platform (ICP) is an IP telephony system that delivers the voice capabilities and features expected from a traditional PBX communications system.

The 3300 ICP acts as both a TDM/IP PBX and an applications gateway, meaning it can be used to host a call centre, teleworking, soft-phones or other applications, without ripping out the existing telephony system.

It can sit gracefully with the current telephony system and can be used to migrate to IP when it makes sense to do so.
The Mitel- HP solution has provided us with cost effective, feature rich, high performance products which complement each other greatly. We were delighted how relatively easy and straightforward it is to install, configure and deploy.”

Rob Harder
Telecoms Manager
Plymouth Health Community
Telephone System Integration/Migration

WAN

PSTN

3300 ICP

QSIG/PRI/DPNSS

Nortel
Meridian

Matra
65xx

Ericsson
MD110

Siemens
Realitis

Avaya
Index

Philips
IS3000
Office in a Box

- The 3300 CXi gives organisations with 8 to 64 users the full benefits of IP Telephony at an affordable price.
- Offers full IP security including firewall, data router and Network Address Translation.
- Offers a 16-port layer 2 data switch, supporting industry standard power for telephony devices.
- Where an organisation has a data network in place, the 3300 CX offers all the same applications as the CXi.
- No additional hardware required to support peripheral items such as fax machines, DECT wireless phones etc.
3300 CX and CXi Controllers

- Supports up to 64 IP extensions
- CXi has integral 16 port powered L2 Ethernet switch that can be expanded by adding ethernet switches
- Integral analogue solution
  - Embedded 6 analog trunks and 4 extensions
  - Expands to 12 analog trunks and 8 extensions
- Networking with
  - PRI (2 circuits) 48/60 channels
  - BRI (2 cards) 16 circuits (EMEA, AP, CALA)
  - IP Networking
- Integral ports
  - Maintenance, MOH, Paging port, SFT/PFT, Secure Telnet (PPTP)
  - LAN Ports for SMDR, Call logging, PMS
- Software same as MX/LX 3300 ICPs
Mitel has one core IP platform and the product roadmap evolves based on that one platform.

Organisations do not have to rip and replace if expansion is required. Applications added on as required.

VALUE. The 3300 ICP has an embedded voice mail system, Automatic Call Distribution, a wireless gateway and Computer Telephony Integration tools.

Scalability from very small to large, from 5 to 65,000, modular, easy to implement.

Ease of management, an evolutionary direction headed up by Mitel Enterprise Manager under which systems and applications are managed under one system.
Multi-Tenanting and Billing

- Tenanting allows a system to be partitioned among a number of tenants and be configured to look like a separate system to each tenant.

- Up to 64 organisations can share features and capabilities of the system.

- Consoles, CO trunks, and dial-in trunks can either be shared between tenants or allocated individually to each tenant.

- Switching to night service can be done centrally, or by an individual tenant.

- Inter-tenant calls through the system can be blocked, so tenants can only call each other on external trunks.
Centralised Management of Voice Communications

- Management system provides web-based system configuration and maintenance and control

- Network managers can access the system from anywhere on the WAN

- A single system view of all users, sites, equipment features and services

- Acts as the central management interface to the voice system

- Brings system and application administration under a single umbrella
Enterprise Manager

Features

- Mitel Ops Manager embedded in Enterprise Manager
- Voice Quality Health Monitoring, IP Phone Analyser
- System management of 3300 ICP, SX-2000, Applications
- Network inventory
- Remote management for network health monitoring
- Provisioning and administration
- Diagnostics: Voice Quality Manager
- Integrated Management: (Applications suite evolution)
  - Traffic Reporting, Traffic Monitoring
  - Network Route Management, Security Administration

Adopts approach of do once, write many, so administrators can manage user privileges from one point, rather than having to change privileges on multiple platforms.
Enterprise Manager

Management Desktop and Topology Inventory

Toplogy and Network Inventory Visuals

Management Desktop and Tabular Inventory
# Applications Management Center (AMC)

## Software and License Tracking and Provisioning

### Customer Information

<table>
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<th>Customer</th>
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<th>Application Records</th>
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<td>Spain</td>
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Current UTC time: Feb 17 2005 18:23:37
Moves, Adds and Changes (MAC)

- IP phones can be physically re-located across a network easily, reducing time and costs associated with traditional MACs
- Reducing the time and effort to conduct MACs produces significant cost savings
Mitel 5550 IP Console

- A PC-based console and administration application
- A highly intuitive Graphical User Interface including screen based call status and call handling prompts
- It combines an intuitive PC interface and specialised telephony keypad for easy dialling
- Additional database fields can be viewed and accessed by the operator, attendants can easily view information about users and transfer callers to alternate numbers with a simple click of the mouse
- The console screen can be customised to make the most efficient use of information
- A Comments Field provides console operators with the ability to update a user’s status with a comment that is visible to all the operators on a network
Mitel 5550 IP Console

- Console operators can view Incoming Calls, Calls on Hold, and Transferred Calls at a glance.
- The “Incoming Calls” window allows operators to handle certain calls with priority as required or to alter their greeting based on the CLID.
Mitel 5235 IP Phone

- Can be used as an ACD agent as well as a teleworker phone
- Backlit Screen, Touch Display – ¼ VGA
- 24 Programmable Touch Screen Keys (Line Appearances, Speed Dials) presented in either two pages of 12 keys or 3 pages of 8 keys
- 8 Function Keys: Speaker, Volume / Contrast Up / Down Speaker, Microphone, Message, Hold, Transfer / Conference, Cancel
- Application tabs: Phone, People, Messages / Visual Voice mail, Call History, Settings and Applications
- “My Phone”: Customisable Idle Screen Softkeys, Layout, Personal Keys
- Support for Programmable Key Modules, Line Interface Module, IP Conference Unit
- Full Duplex Handsfree
- Dual Mode IP phone (MiNET, SIP)
- Dual Port
- XML support for applications
SpectraLink wireless telephones offer the same features as the standard Mitel IP phone.

**I640 Wireless Telephone**

Durable 6 ounce handset designed for healthcare applications.

**h340 Wireless Telephone**

Lightweight 4 ounce handset designed for healthcare applications.
Hospitals

Need for Wireless Telephones

- Users

  → Inter-departmental usage and roaming

  → Departments needing wireless
    - Specialists
    - Critical care
    - Patient care resources
    - Therapists
    - Transport
    - IT staff
    - Maintenance
    - Administration

  → Communications habits:
    - Require direct dialing (inbound/outbound)
    - Voicemail tied in to corporate system
    - Frequently discuss sensitive and private issues
    - Heavy phone usage or lengthy conversations
Innovative Applications

Spectralink Wireless Phones

Security and Staff Monitoring

- If someone presses an alarm on a SpectraLink Wireless Telephone (such as function 1) an automatic alert is sent out to the nearest security guard.

- This is accomplished through the Wireless Access Points, which have the intelligence to know where that handset is.
SpectraLink Open Application Interface

Messaging
- Send text messages to NetLink Wireless Telephone
- Use NetLink Wireless Telephones as a “remote control” device
- Priority text message interrupt ring
- Email alerts

Software Development
- Open to any application developer – Inventory, heating, fire alarms, lighting
- OAI Developer’s Kit available

Applications for monitoring have been purpose built for use in healthcare facilities
Applications to Enhance Service and Operations
Better Communications with Patients

- NHSIA estimate that a letter costs £1.10 to prepare and write, including purchase of the paper, envelope, stamp, person to write and stuff

- It costs the hospital £280 each time a patient fails to attend an appointment

- Calling patients to remind them of an appointment is a meaningful way to reduce non-attendance

- A Notification System is a cost effective means of doing this
Patient Notification System

- Advise patients of upcoming appointments
- Patients acknowledge attendance or advise they will not be attending, system then frees appointment for another patient
- Uses voice recording, email, SMS, fax and email
- Advise patients to take medication
- Advise patients on waiting lists of openings
- Enable patients to register their details with the hospital, surgery, or clinic to enable parking payments to be taken out of their bank account using SMS
Patient Notification System

Provides users with timely access to critical information aimed at improving interaction between the GP’s surgery and the patient

Provides channel of choice to patient

The system can be used to:

1. Disseminate critical information to large numbers or targeted groups of people
2. Receive critical information and disseminate it quickly to key people
3. Provide information that recipients must act upon
Notification System

Features

- Integration with Patient Information System
- Multi-Channel Delivery, voice recording, email, SMS, letter and fax
- Ability to break out from the voice recording and speak to an administrator
- Detailed Reporting and recording of calls made
- Multi-Language Delivery
- Call Back establish number of times to try the number
- Web based management
- Managed Service
Notification System

Features

- Customised messages
  - Use own staff to record messages
  - Use trained actor
  - Messages defined to meet your needs
- Provide notification out of hours by scheduling voice recordings to play after hours
- Provide detailed call reports and recordings as evidential support on target areas; DNA’s, blood donor clinics
Notification System

Benefits

- Managed service, no equipment to manage on site
- Reduce DNAs
- Provide timely reminders to patients
- Reduce need to have staff contact patients and make contact at times most likely to reach patients
- Reduce the digital divide (voice messaging capability ensures households without constant access to a computer and the Internet have access to information)
- No equipment to manage
Patient Notification

- King’s College (Main Site)
- King’s College (Dental) Kings College and Guys and St. Thomas’s
- Milton Keynes General Hospital
- County Durham Hospital
- Rotherham General

RESULTS

- Reduced DNA rates by 30-36%
- Pediatrics Clinics and Women’s have highest DNA’s and witnessed best results
Improving Communications

Hot Desking

- Allows rotational and mobile staff such as consultants and nurses to access their own profiles
- Staff can share the same office/desk space and have their preferences associated with the phone when they log in
- Overcome space issues by allowing desktop phones to be shared, allowing staff to have access to their own phone preferences, such as call forwarding profiles, speed-dial numbers and personal extension number while using the phone
Hot Desking | Features

- Phones can be restricted when no one is logged in
- Phones can be restricted for internal calls only or local calls, reducing toll abuse, so phones can be placed in public places
- Allows users to have the same number at home or in the office – when used with the Teleworker system

- Hotdesk profile includes:
  - number, name, key appearances, message waiting, speed-calls, pick-up groups, hunt groups, class of service (long-distance, outside calls)
Mobile Phones

- 64% of mobile calls made at home or at work
- No access to corporate resources (transfer etc.), just dial tone

Source: Strategy Analytics
Improving Operations
Mitel Mobile Extension

- One number/one voicemail functionality
- Twinning Desktop phones and Wireless phones, mobile or DECT or SpectraLink
- One number rings all devices simultaneously
- Seamlessly transfers call to desktop
- Ensures staff are highly accessible anywhere
- Eliminates the need for call forwarding or “find me, follow me”
One Number Means Mobility

- The ability to take or initiate a call while in transit and switch to a deskphone upon arriving at the surgery
- Switch back to a mobile if attendance is required at a meeting across the building
- Combined with hotdesking, it allows users to log onto an IP phone anywhere on the network and the phone adopts their profile including keys and functions
- HotDesking also allows users to take a call at their desk and transfer the call to their mobile device
Emergency Calls In the Surgery

- If a physician feels threatened or in case of patient collapse
Mitel IP Duress Application

- Deployment of a front line link to first responder
- Not an all or nothing, can be deployed to selected phones
- IP solution
- Eliminating the need for structural wiring to deliver panic buttons
- The capability to initiate a "Silent Duress" call and escalate to the appropriate security central person, local or remote.
- These IP phones would reside in a "networked IP" environment
Waiting Room Paging

- Paging enables a practitioner to call in patients from waiting room areas
- Make an announcement across the building network simply by using the features on the handset
- Allows you to connect to loudspeaker/paging equipment to access individual paging zones or all paging zones simultaneously
Recorded Announcements

- Busy times in a surgery means callers may not get through
- Create a "good" abandoned call, by providing information to a caller without the need for the caller to speak with someone
- Uses a Static Recorded Announcement Device
- Provide callers waiting on hold with pre-recorded announcements
- Provides greater availability and accessibility to general information
Embedded Music-on-Hold

- Up to 65 sources of music can be connected to each system
- Use System Audio Files Update form to download an audio file to a single 3300 ICP node

⇒ Note: The audio files will be preserved as part of the dB Backup and Restore
Messaging

Options

Options available for a mixed deployment, to scale and suit the needs of unique customer requirements

Options

Voice Mail Only
Pick up messages on the go, allow callers to leave a message

Integrated Voice Mail
Allow users to navigate their voice mail box on their desktop instead of listening to all messages before getting to the one that’s most important

Unified Messaging
Have text and voice mail messages read to you while on the go and prioritise, provide speech commands to calendar
Embedded Messaging

- The system includes a multi-level auto-attendant to conveniently and quickly route incoming calls to their destination.

- Supports alternate greetings to provide callers with important information while easing the burden on reception staff.

- The surgery greeting can be programmed to automatically change from open business hours to closed or after hours.

- A surgery greeting can be programmed for use over holidays or shutdowns that will automatically expire after a specified number of days.

- In multi-user sites, each port can be programmed to allow distinct open, closed and temporary greetings for different users.
Voicemail for Dictation

- Instead of using a dictaphone a consultant could use voice mail to record notes and actions resulting from an appointment with a patient.
- The voice mail box could be retrieved by an administrator and played back to execute on the action items recorded by the consultant.
- Unlimited message length with a “continue message recording?” prompt after five minutes of recording.
- Allows subscribers to rewind, fast forward, or pause.
- Allows immediate replay of a message, including time stamp, calling party information.
Mitel Messaging Server
Message and Mailbox Management
Any Device, Any Time

- Messaging Server lets users access and manage email, voice mail, and fax mail via phone, email and the web
- Users can listen to email using synthesised voice over any telephone
- Users access incoming faxes from their voice mailbox and email client
- Users can access faxes remotely over the phone or have them routed to a local fax machine
- Users can also administer their own preferences through an easy to use browser-based interface
Messaging Server

- Manages
  - Messages (In-box)
  - Calendar
  - Task
  - Contacts
Messaging Server - Integrated Voicemail
Speech Enabled Calendar
Set up a Meeting

- American Family Insurance (Conference Call)
- Group meeting (4L conference room)
- Meeting
Speech Enabled Tasks
Notification

- Activated by speech commands or Web GUI
Messaging Server

Auto - Attendant

- Presents a professional image to callers during off-hours, when call volumes are high or when a receptionist is away

- Features include
  - multilingual
  - time-of-day / day-of-week greetings
  - holiday greetings
  - intelligent routing
  - off-site transfers
  - user definable business hours
  - company directory
  - fax-on-demand
  - auto-fax-detect
  - multi-tenanting
Communications and Staff Safety

Healthcare staff may have to work in the field on their own, posing a safety risk for employees.

To provide peace of mind and protect staff, a Lone Worker Alert System can be deployed to provide a safety net for field workers.
Communications and Staff Safety
Lone Worker Alert System

- The Lone Worker Alert System is a personnel tracking and safety system designed to monitor security of lone workers.
- Users access system via a mobile or landline telephone.
- System monitors events and undertakes notification by phone, fax, email or a visual/aural emergency system when events are overdue.
- Workers constantly update system using touch-tone or voice.
Extending the Surgery
Teleworking

– Provides telephony to any location with broadband Internet access

– Easily implemented using a router and a standard Mitel Networks IP phone at the end user’s location

– Easy to implement and maintain, meaning minimal management overhead

“...So easy to implement, my 9 year old son installed ours”

Lisa Dolphin | Mitel
Teleworking | Features

- Four digit extension and dialling
- Access the same features as on the office phone, (voice mail and conferencing)
- Adaptive jitter buffering to improve voice quality over the Internet (G.729 compression to reduce bandwidth requirements)
- Encryption provides a secure voice path between phone and system across the Internet

In its first six months, over 1 million calls were made by Mitel Teleworkers around the world.
To ensure the Teleworker set is always available, the Mitel Line Interface Module is available to provide teleworkers using the Mitel 5220 IP Phone (Dual Mode) with the ability to make and receive calls on an analogue line in either of the following modes:

- **Line Interface Module Mode**: users can access the analogue line at any time by pressing the programmed key.
- **Fail-over Mode**: users can use the analogue line when the IP connection has failed.
- Users can place emergency calls to a local emergency number using analogue in either mode.
**Teleworking**

**Benefits**

- Connect GP surgeries, pharmacies and other sites to a hospital using broadband
- Extend communications from the surgery to a part-time consultant’s home or another surgery
- Enhance the work life for those who need to work extended hours
- Provide out of hours access
The UN gave Teleworker phones to representatives from each country to take back to their local government offices. These phones are used to call the UN offices in NY in order to reduce long distance costs that were being billed back to the UN.
Making Calls on the Desktop

Answering a call opens a softphone on the desktop, providing controls for handling the call.

When a call comes in, a pop-up window lets you know who is calling.
Your Assistant Soft-phone

- Users remotely connected to the Mitel 3300 IP Communications Platform via a secure network connection, such as broadband can make and receive calls as though they are inside the school.

- Uses a simple USB headset.
Contacts on your Desktop

- Integration into corporate directory allows users to click to dial numbers from their desktop
- Personal contacts are added by dragging and dropping the contacts from their personal contact directory
- Logs incoming calls while the desktop software is not running
- Users simply can view their missed calls and click to dial the one that is most important
Knowledge Management

- Immediately bring up files associated with the incoming Call Line ID
- Never have to hunt for files associated with a previous call
- Users can respond quickly to a call
- Provides a swifter way to deal with calls for busy physicians, nurses and administrators
Thank You

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