NORTEL NETWORKS
BUSINESS WITHOUT BOUNDARIES

Creating the Virtual Enterprise

Wayne Venter

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Market Trends

- VoIP and IP Telephony are a given
- Voice is becoming an application on the data network
- SIP based multimedia collaboration is enabling people to connect and collaborate anywhere
- Communications are being integrated into business applications and workflow process rules

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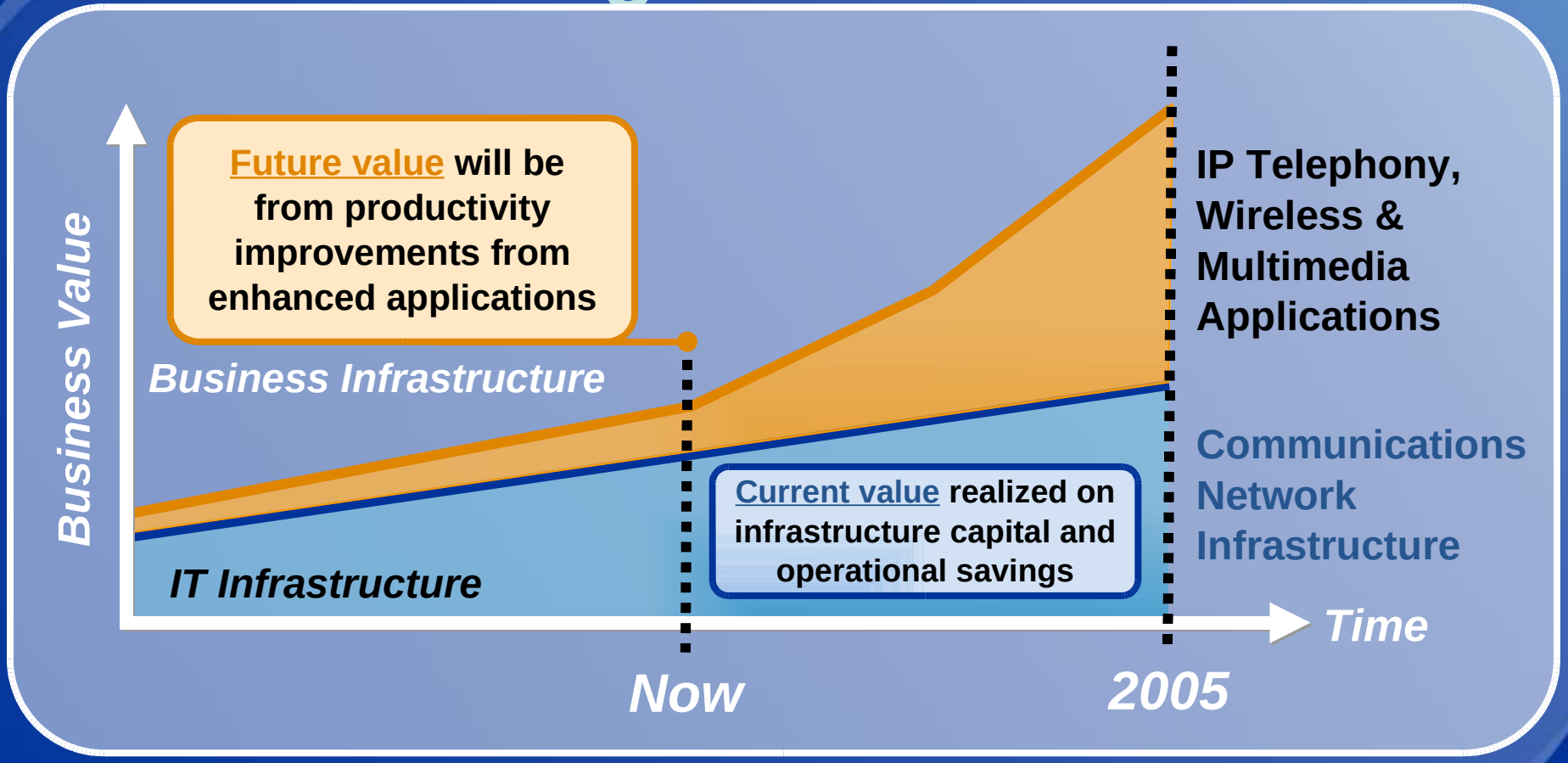
Delivering Business Value



Source: Yankee Group 2003

Evolution of business relationship

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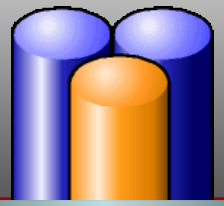
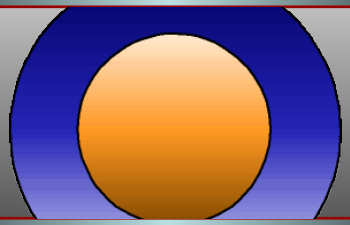
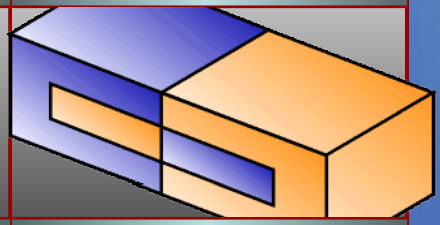
Silos	Linked	Integrated	Engaged
			
Focus: Cost Containment, Independent Transactions	**Focus:** Customer Service, Information sharing	**Focus:** Customer Loyalty, Personalization	**Focus:** Customer Development, Anticipating needs
Success Metric: Operational Statistics	**Success Metric:** Customer Satisfaction	**Success Metric:** Revenue/Profit by Customer	**Success Metric:** Return on Relationship

⟵ Stages of business adoption ⟶

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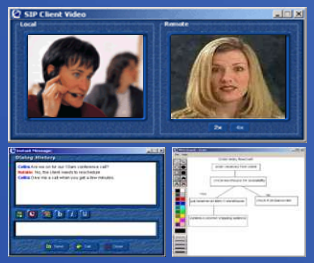
Convergence Roadmap

2000 VoIP Convergence	2002 Converged Applications	2004 Collaborative Applications	2005 Engaged Applications
			
• Toll Bypass	• PC Soft phones and VPN • Unified Messaging • Web User Interface to Applications	• SIP Team Working Applications • SIP Presence and Mobility • Multimedia Contact Centre	• SIP Applications extended beyond the enterprise • Automated Multimedia Self Service
TCO Phase	Personal Productivity Phase	Organisational Productivity Phase	Market Productivity Phase

IP PBX Enables The Virtual Enterprise

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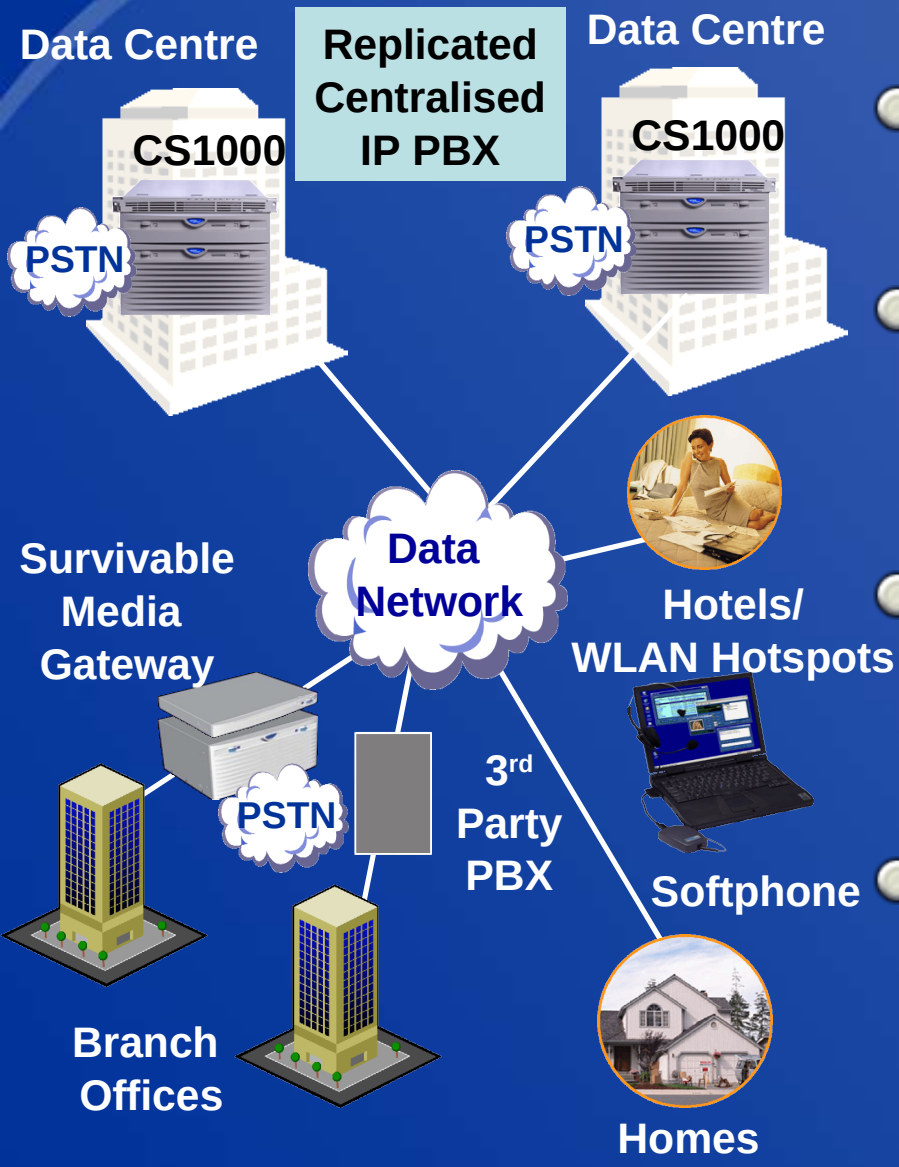

- Centralised deployment
- Easy integration into business applications
- Simplified network design = lower capex and opex
- Flexible deployment options -enterprise or carrier hosted

Building the Converged Network

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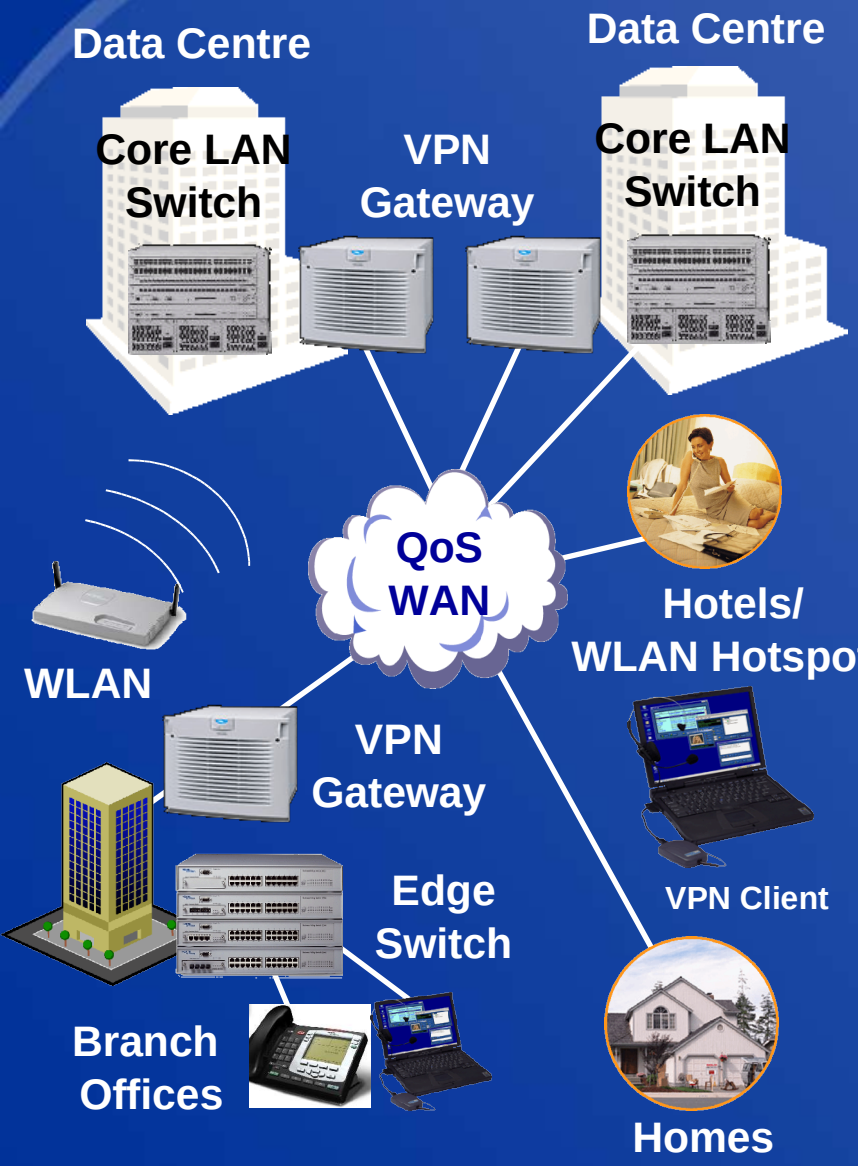

- Simple 2 tier data network
- Sub second recovery times from network link failure
- Survivable, stackable edge switches – Gigabit, Power over Ethernet
- End to end QoS
- Secure VPN connections

Simplifying Smaller Office Networks

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Re-use digital phones

"Office in a Box" Solution
For SME / Independent Branch Offices

super group

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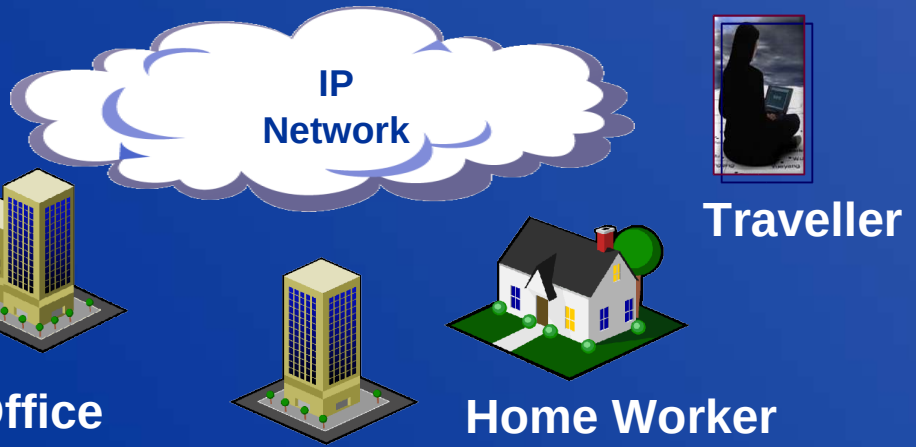
Customer contact methods

Telephone
Electronic – web, email
Paper
Face-to-face

CRM
capture customer Information

Workload management
Skills based routing to Employee trained in Requested task



Requirements across all branches:

- Effective and efficient customer service
- Management and cost control
- Increase calls to sales ratio
- Increase staff utilisation

Employee retention

SRG: Converged Branch Solutions

Small Branch 10 – 50 Users

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Multiple PSTN Interfaces

PSTN

Centralized management

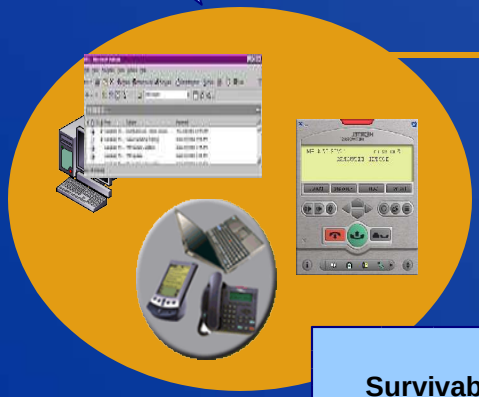
Consistent desktop interface & applications across network

Corporate Campus

IP Routing

Seamless extension of features & applications

Unified Clients with Multimedia Software phones, IP Voice, Wireless and Analog



Integrated, QOS Enabled IP Routing with multiple Network Interfaces

Enhanced Security with IPSEC VPN, Integrated Firewall

Survivability in event of network failure

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Integration into Business Applications

- Unified messaging is the integration of voice, fax and email messaging for playback on PC or Phone
- Unified communications is the integration of real time voice, video into desktop and business workflow applications

IP Phone Portal Applications

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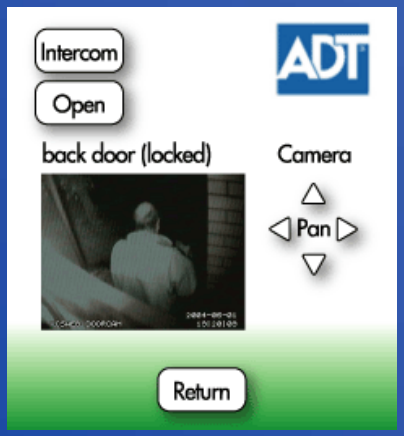
IP PBX

Application Gateway



Embedded Power over Ethernet
Embedded QoS monitoring agent
SIP firmware stack ready

Menu driven desktop portal
-Visual Voicemail
-Directory dialling
-Broadcast alerts
-Interact with servers

Roadmap - Productivity Applications

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This phone is powered by:

Net6 Voice Office

- Express Directory
- CallPilot Visual Voicemail
- Other services

Express Directory

- Adams, Alice
- Baker, Samuel
- Brown, Linda
- Connors, Arnold
- Davidson, Frederick
- Donovan, Erika

Return

Directory Entry For:

Collins, Malcolm
President,
Enterprise
Networks
Tel: 408-555-1212
Mobile: 408-526-1212

Return

Visual Voicemail

Your Voice Messages:

time ▼	*caller*	*priority*
11:30am	Brown, Sandy	Urgent!
10:43am	408-382-4900	Standard
10:10am	613-866-2550	Low
9:16am	Hickory, Sam	Standard
Friday	Thompson, Sam	Urgent!
Wed	Thompson, Sam	Private
Tues	Thompson, Sam	Private
Mon	Hickory, Sam	Low
Mon	Thompson, Sue	Urgent!

Return

Conference Manager

Conference Status:

Title:	Weekly Sales Call
Chairperson:	Shilling, Fred
Current Attendees:	5
Thompson, Sam	*Speaking*
Bush, Sandra	*Listening*
Turnbull, Nathan	*Muted*
Ryan, Theodore	*Listening*
408-382-5674	*Lisening*

Return

Fire Alert

Notice:
Lab 7 has a reported fire.

All meetings in Lab 7 are cancelled. When the Fire Dept. have reported the building clear, operations will resume.

Please stand by.

Security Services

Return

IT Alert

Notice:
The network has been infected with a worm and the data center is currently offline.

Current Estimated Resolution Time: 43 minutes.

Return

AMBER ALERT CALIFORNIA

PLEASE HELP FIND MISSING GIRL

Carley Jones-Masham, San Jose, California: Last seen walking from her bus stop on Tuesday , May 19, 2004 at 7:00 a.m. in the morning.

Description | Contact

Roadmap - Innovative Applications

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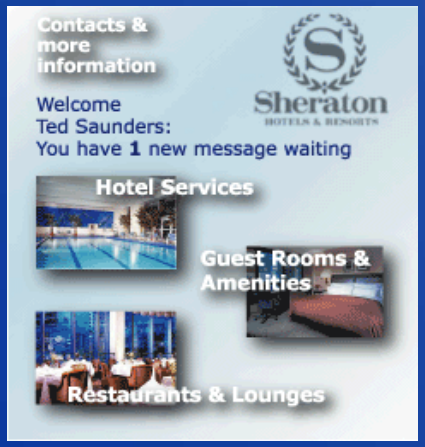

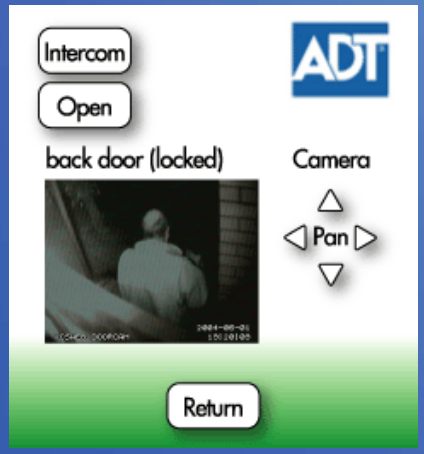

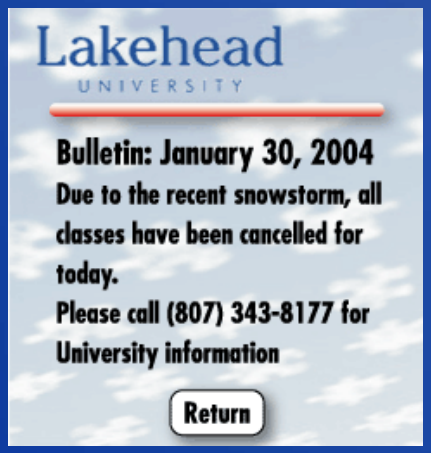

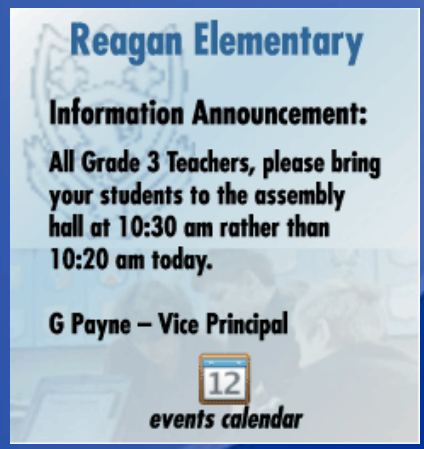

The DTI

- Solution Overview
  - Largest campus IPT project in Africa
  - 2400 IP phones
  - POE with HA Core
  - 7 Buildings
  - 9 Companies
  - End-2-End Nortel Networks
  - Fully Converged – Unified Desktop

Unified Messaging Flexibility Boosts Productivity

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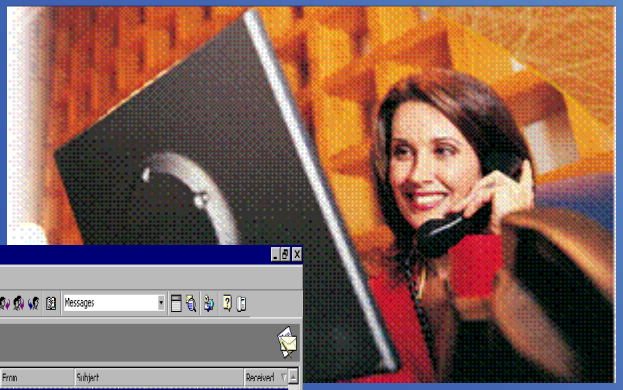
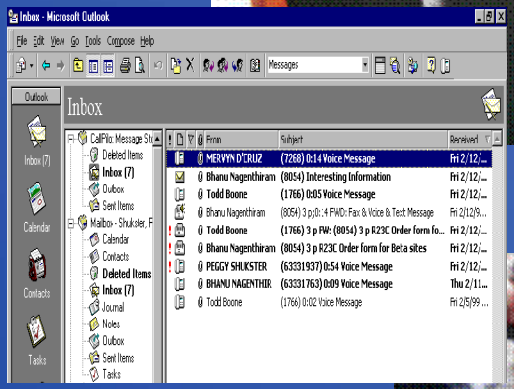
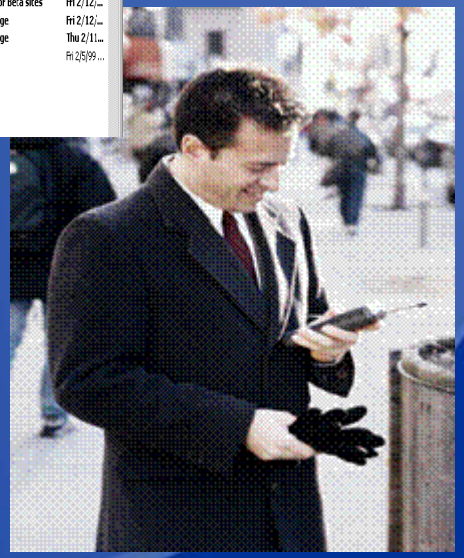
- **Access voice/fax/e-mail messages from**
  - Any PC using Web client
    - My CallPilot web interface
  - Your Portable PC
    - Voice / Fax Inbox is integrated into e-mail client
    - Same interface as e-mail client
  - Your Mobile phone
    - Speech commands to handle messages while driving
    - Email by phone to listen to emails
    - Remote notification of messages
  - Visual messages on your IP phone







Converged Desktop Applications

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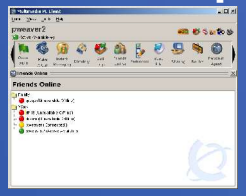
1. Presence indication of colleague's availability reduces telephone tag



2. Instant Messaging for fast answers to easy questions

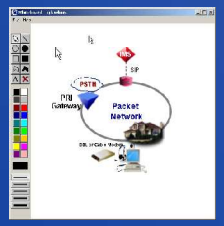
3. Telephony when discussion is required

Click to call from email, I.M., directories

4. Video for enhanced communication

5. Web Push & Co-Browsing to point to information on the web

6. Whiteboard to share ideas



7. Instant File Transfer to complete task there and then

Time savings and easier to communicate

Virtual Office Work Anywhere!

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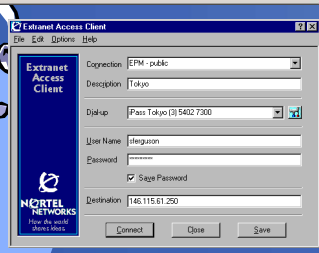
ick to call”

web client to
nnect your
hone with
person
u’re calling

Full multimedia collaboration
From broadband locations
Eg Wi-Fi hot spots, home xDSL

Log-in from any PC / Phone
And access full services

Web client and desk phones



MCS and VPN clients

Visiting Other Offices

Customer’s Sites

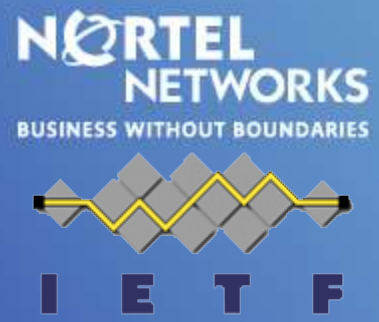
Extend All The Services
You Have In the Office!

Work From Home

From Hotels

From Airports

What is SIP?



- SIP is a text-based protocol, similar to HTTP and SMTP, for initiating interactive communication sessions between users
  - Application-layer signaling protocol for creating, modifying and terminating media sessions with one or more participants
  - Independent of transport-layer protocol
  - Internet telephone calls, audio/video/data conferences, multimedia etc.
  - Supports user location, user capabilities determination, user availability determination, call setup, and call handling
- Defined by:
  - RFC 2543 (SIP: Session Initiation Protocol)
  - Revised as RFC 3261
- Part of the overall IETF multimedia data & control architecture

What is SIP?

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Text Book:

Session Initiation Protocol (SIP) is a text-based signaling protocol, for initiating interactive communication sessions between users. Such sessions include voice, video, chat, interactive games, and virtual reality.

Nortel Networks:

SIP-driven converged communications connects users over any device, utilizing individual preferences to eliminate access barriers, and provide real-time network and application awareness that improve productivity and streamline business processes.

The SIP Advantage
= Speed Up Communications

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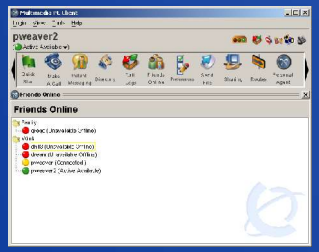
James
Available On PC

IM / Telephony /
Document Sharing

WLAN
/ 3G

"I need
help"

Team Availability
Status
"Presence"

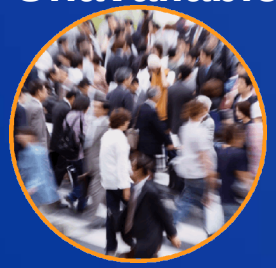


Mark
Available On Mobile

Mobile
Network

Telephony

Others
Unavailable



Laura
Busy on Phone

Campus
Network

Use IM
Or call back when free

Integration Into Business Process Rules

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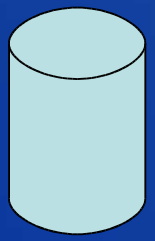
Available On PC

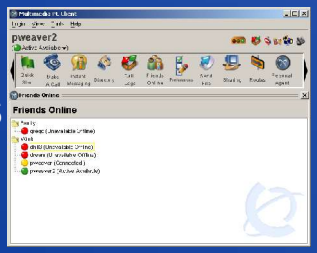
Document Delivery

IM / Telephony

Decision Maker's availability status



API's



WLAN / 3G

Business process rule triggers event requiring action

Eg Field Service Engineer needs customer service info

Available On Mobile

Text to Speech

VXML Script

Mobile Network

Connect and Collaborate SIP Team Working

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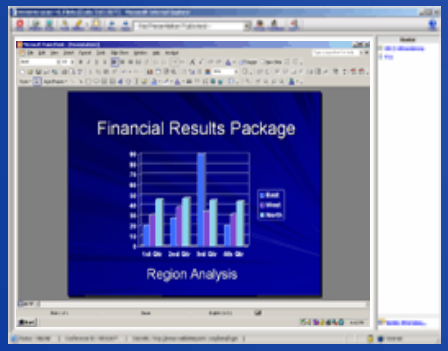

- Create Virtual Meeting Rooms
  - Mixed media enables more effective team working over the network
  - Highly scalable audio and video conferencing bridge
  - Instant Messaging updates on who joined / left the bridge
  - IM Chat to share information
  - Publish material as JPEG to everyone's web browser
  - Hand over control of application on your desktop to participant to edit document
  - Real time application sharing

Use These SIP Services in Conjunction With Your Desk Phone

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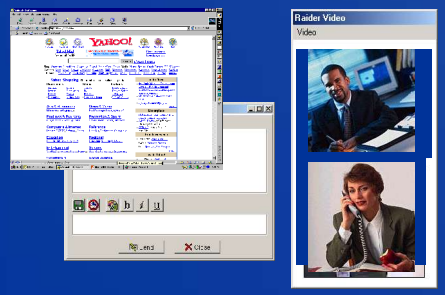
Multimedia Applications

- Desktop Video Calling
- Multimedia Conferencing
- Instant Messaging
- Collaborative Apps



Enriching the Communications Experience

Personalisation

- Presence Management

"on the phone"

- Personal Call Manager

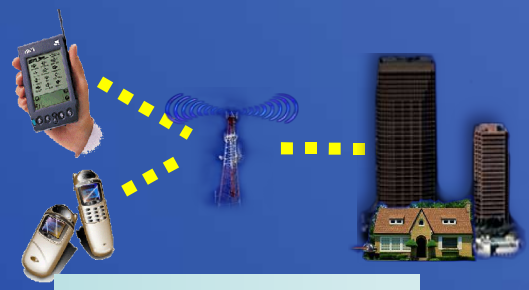
Directory
Click to Call
Call Logs
Call screening

- Picture Caller ID
- Outlook Integration

Personal Control of your Communications Experience

Mobility

- Find-me, Guide-me
  - Simultaneous Ringing
  - Sequential Ringing



Services Anywhere, Anytime

The Virtual Enterprise

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Eliminating Boundaries

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Enterprise Solutions

Enterprise Networks

Leader **in Convergence**

The Informed Choice **in Data**

Innovator **in Communication Applications**

Network Transformation ⟷ ***Business Transformation***

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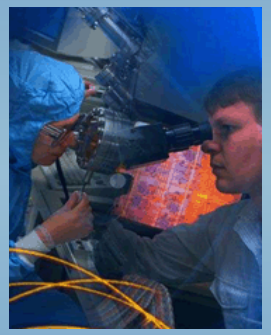
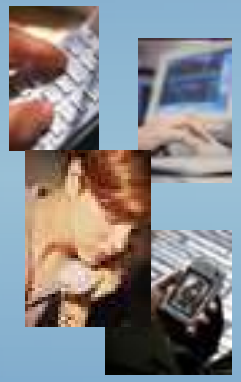
Portfolio Core Values

Leadership & Innovation



Leading edge technology

Service Ubiquity



Anywhere, anytime, any device

Seamless Scalability

System grows as the business grows

Geographic Flexibility

Workforce Globalization without loss of capabilities

Business Continuity

Operation Resiliency

Enterprise Convergence Portfolio

NORTEL NETWORKS
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Clients

Digital

IP

Wireless

Softphone Clients

Converged Applications

Unified Messaging

(CallPilot)

Multimedia Contact Centres & Speech Recognition Self Service (Symposium)

Unified Communications

(MCS 5100)

Converged Network Infrastructure

BCM (5 to 200 users)

Communication Server 1000 (50 to 15,000)

Passport

OPTera

Contivity

Alteon

BayStack

WLAN

Architecture for the Converged Enterprise (ACE)

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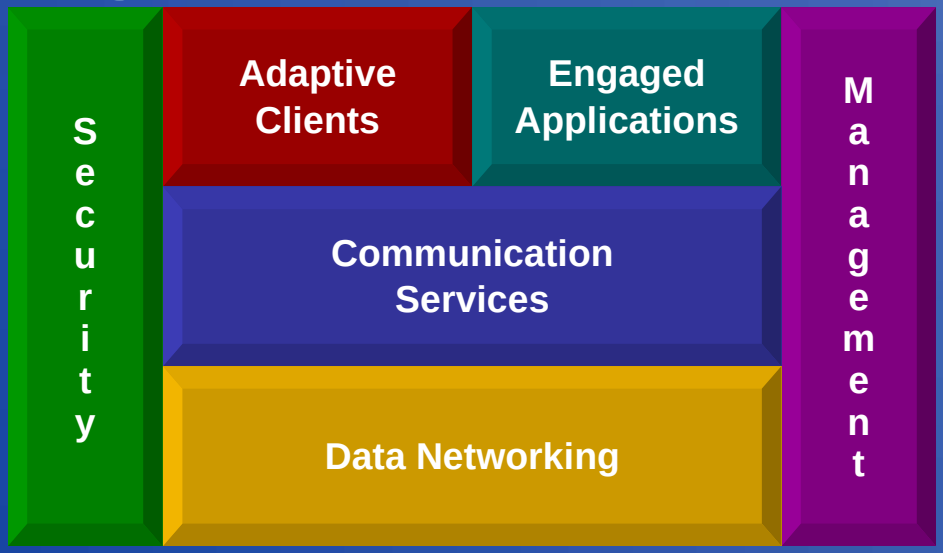

Our Strategy ↙ *business without boundaries*

Our Vision ↙ *the engaged enterprise for customers, partners and employees*

One Network ↙ *protocol, infrastructure, service and application convergence*

A World of Choice ↙ *private, managed and hosted solutions*

Open ↙ *extensible, agile and standards-based*

ACE- Network View

NORTEL NETWORKS
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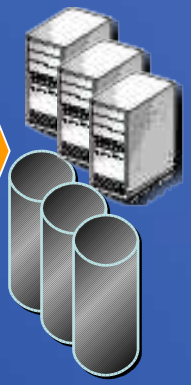
Communications Services
Network-based services
Business telephony
Rich media
Customer Contact
Data Center

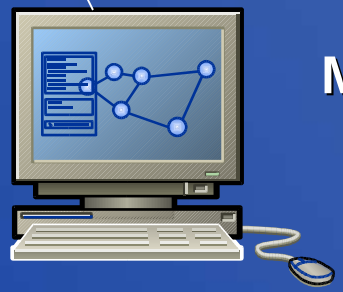
Adaptive Clients
User devices
Network devices

Data Networking
Office LANs & WLANs
Simplified campus
Optical MAN
IP VPN WAN
Internet

Engaged Applications
Employee-facing
Customer-facing



Security
Security products
Secure products and operations



Management
Network
Service
Policy

Flexible Telephony Deployment: Pure IP, Hybrid, TDM with migration to IP

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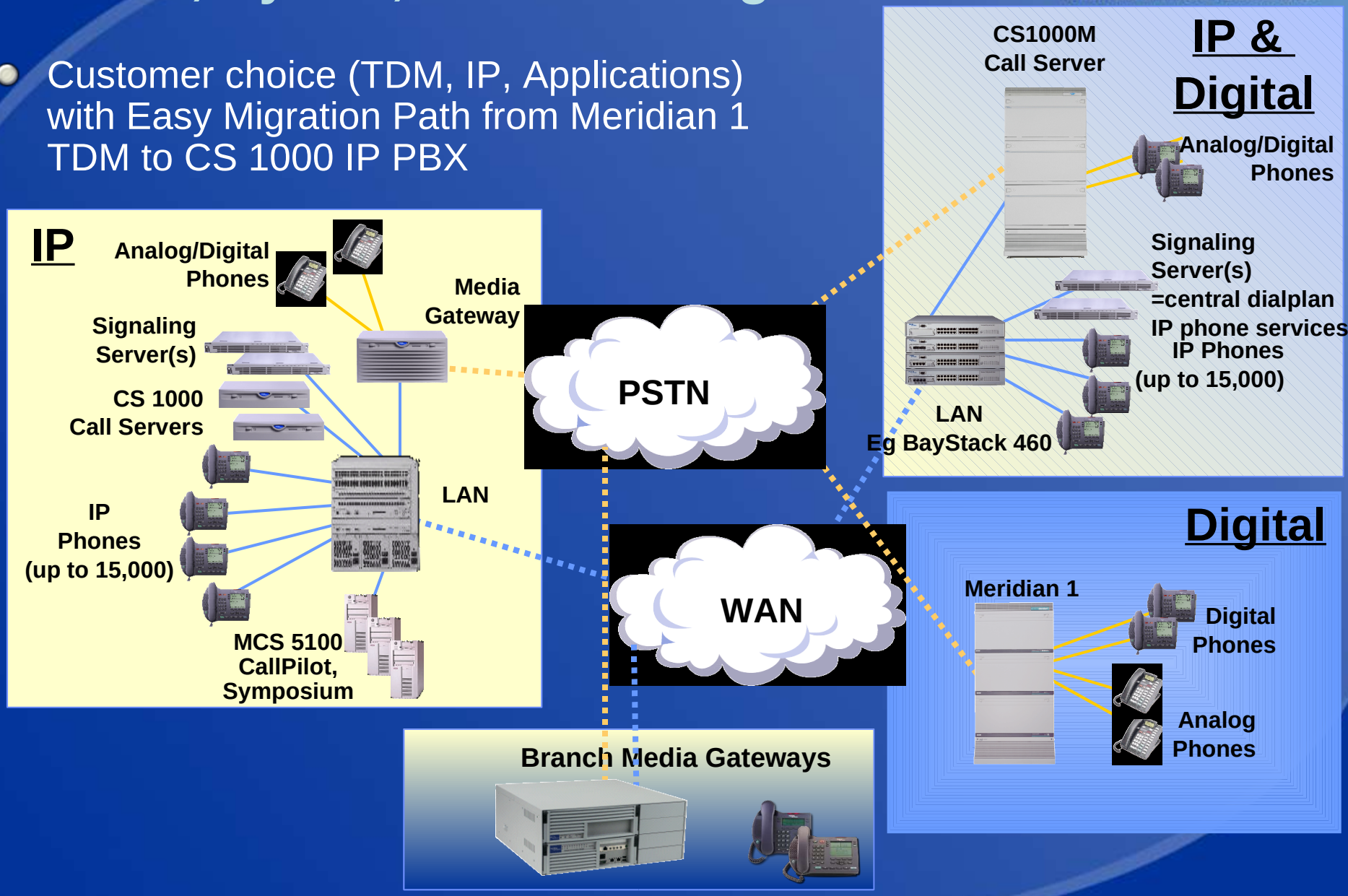
- Customer choice (TDM, IP, Applications) with Easy Migration Path from Meridian 1 TDM to CS 1000 IP PBX



Integrating IP Solutions

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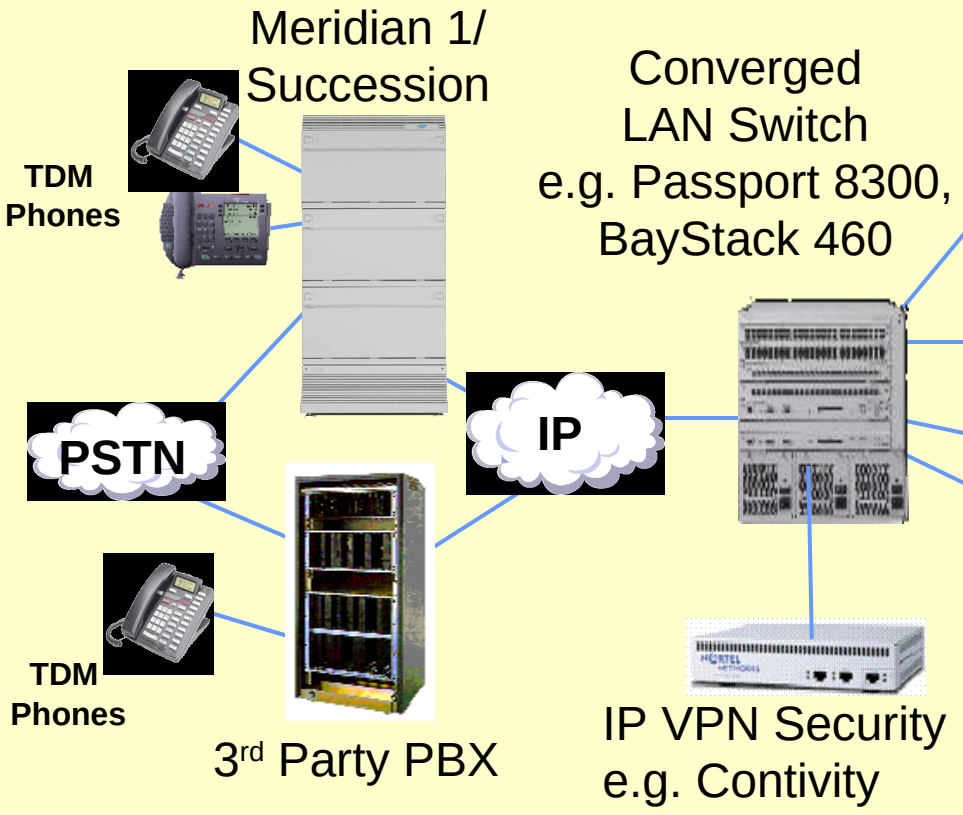
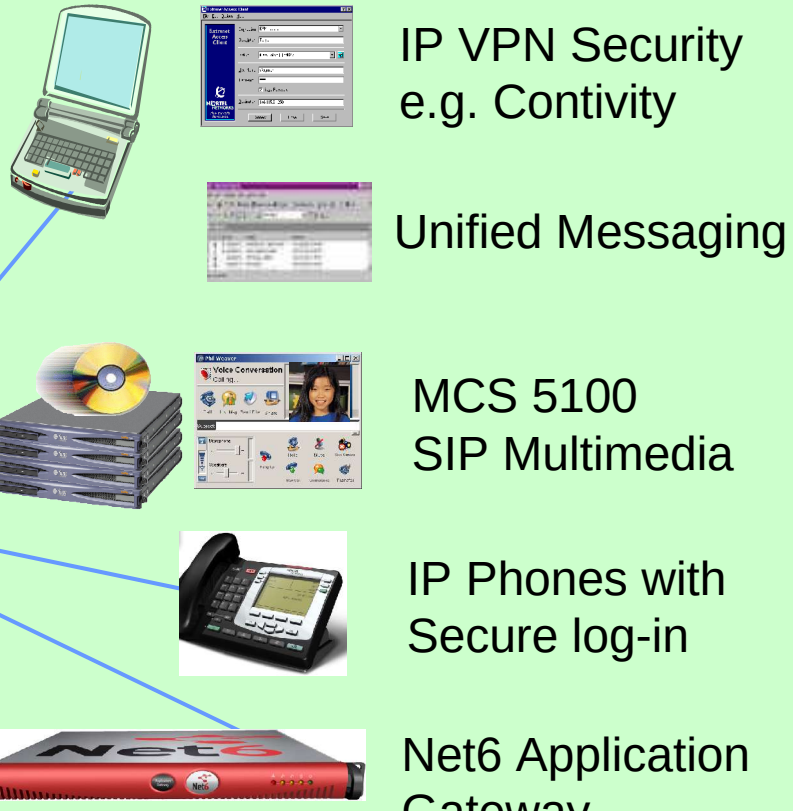
Evolve existing PBX/data infrastructure



Add IP Services



Introducing MCS 5100

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Solution sets:

- Team working: Multimedia collaboration/conferencing
- Mobility “Office Anywhere”
- Desktop productivity
- Custom applications

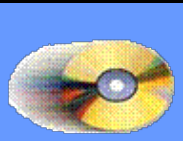
Attributes

- Open standards based
  - Leverage 3rd party products and integrate into PBX/data networks
- Carrier heritage – ultimate reliability/scalability

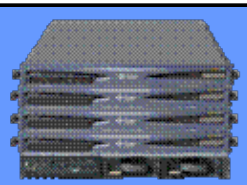
NetworkWorldFusion

Multimedia Communications Server 5100:
2003 Blue Ribbon Award
Network World Fusion

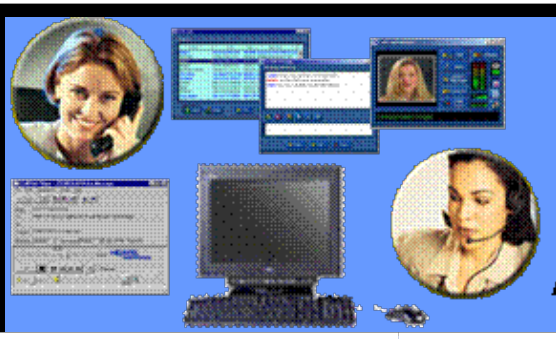
WINNER
BEST OF INTEROP
NETWORLD+INTEROP
CMP Network Computing INFORMATIONWEEK EETIMES



Built in Java



Commercial Server Platforms



Multimedia Engaged Business Applications

Nortel Networks heritage brings ultimate reliability

MCS 5100
Integration with any PBX

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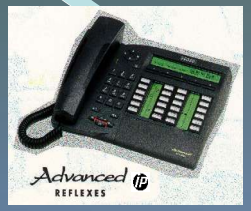
Any 3rd party PBX, IPPBX (eg Siemens, Alcatel, Cisco etc)

QSig / PRI Gateway

LAN

MCS 5100



PBX Phone

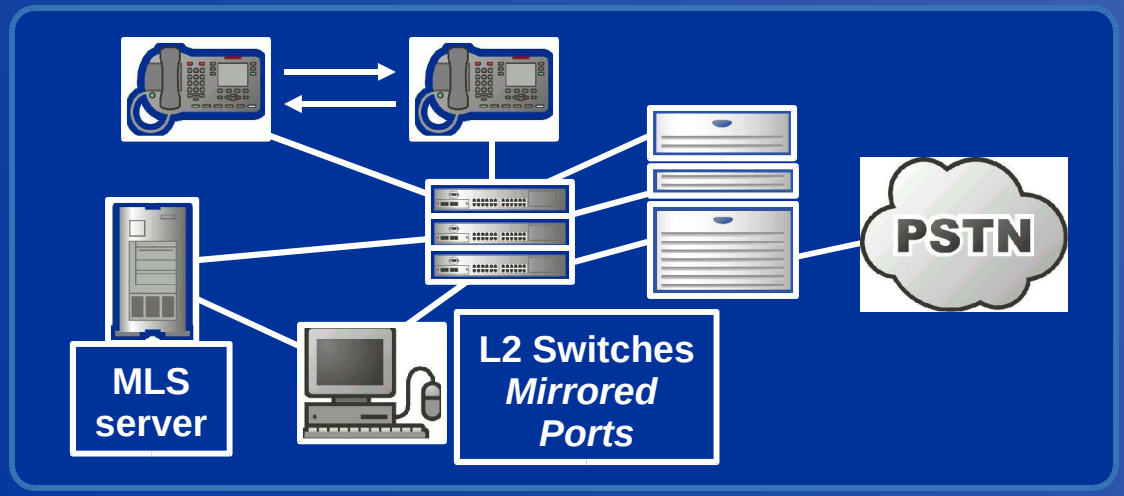
Multimedia Services

Link PBX to MCS 5100 using
SIP / H323 / QSig gateway
And phone / MCS client simultaneous ringing

there are
50 million
reasons to choose Nortel Networks for your converged network
50 million enterprise telephony lines
50 million Ethernet switching ports
50 million VPN clients
50 million SAN Mbps-miles

IP Call Recording

- Provides interfaces to allow call recording for IP clients
- Permits customers to maintain their existing call recording vendors by providing mechanisms for vendors to access IP voice streams (e.g., via MLS)
- Solution comprises 2 components:
  - New messages in signaling to identify callers with IP addresses (i.e., call recording vendors can correlate the user with IP address of its associated IP Device)
  - Changes to the Unistim specification to provide duplicate voice streams to call recording servers
- Supports G711, G729A and G729AB



IP Phone Enhancements

i2004/02 Phase II IP Phones

- **Integrated Power Over LAN**
  - **IEEE 802.3af, Legacy PoL, Cisco proprietary**
- **Full VLAN Support**
- **Support accessories (e.g. i24 KEM)**
- **Three colors: Charcoal, Ethergray, Silver bezel**

i24 Key Expansion Module

- **Expands the number of keys that may be configured on the i2002 and i2004 IP Phones**
- **Two columns of 12 Keys (24 keys) with a 10 character LCD display to facilitate self labeled keys**
- **Extensible to 48 keys (cascade 2 i24 KEM's together or add a shifted page of keys to one module)**

New colour display IP phone (Q1 05)

Bringing Color & *Video* to the Phone

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Customer trials Q4 04
GA: Q1 2005
Name: i2007 – Bluetooth and USB support
1st phone on market to offer touch screen and video capability

Converged Desktop Application Combines CS 1000 Business Telephony with MCS 5100 Multimedia Applications

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Single user, single experience
Coordinated business telephony/multimedia
Existing Telephony & full multimedia features

- Users benefit from being able to keep existing desk phone for telephony and adding MCS as overlay service
- Avoids end user retraining for phone
- Retain investment in Telephony infrastructure and evolve users to IP phones overtime

Scheduling Changes with ICB Release 4.0

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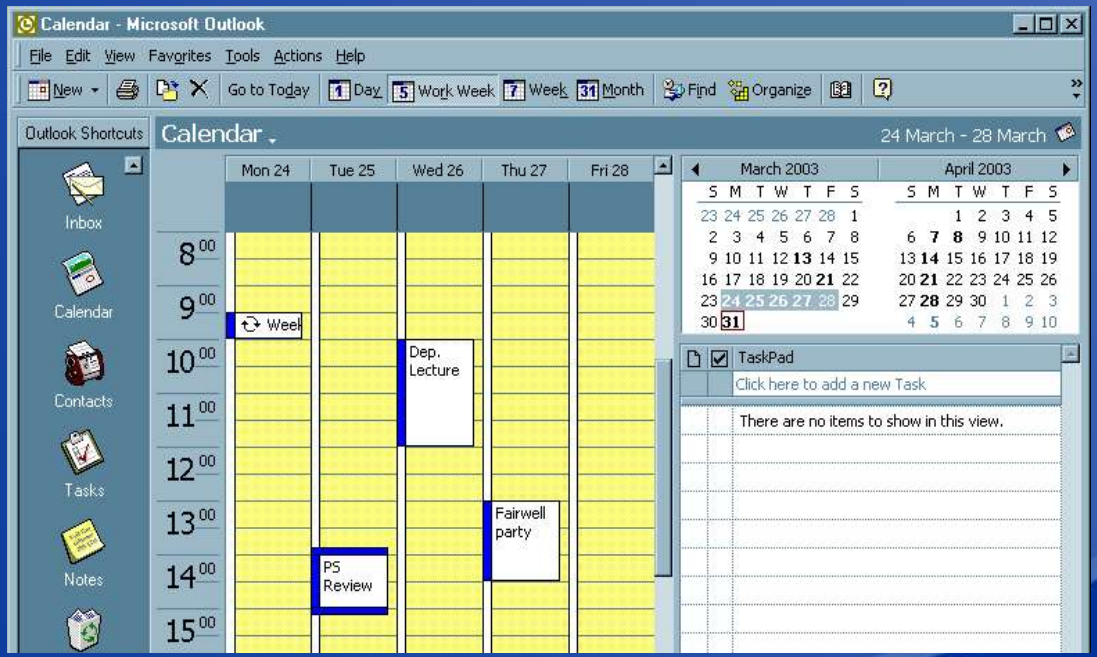
- Regular MS Calendar interface for changing meeting times and automatically reconfiguring bridge ports:
  - Modify time and/or date by dragging the meeting item with the mouse
  - Modify duration by dragging down the bottom edge
  - Delete by selecting the item and pressing “Delete” button



Software Release Subscription (SRS) Overview

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What is it?

- **Contracted services offering entitling customers to annual minor and major software releases**
- **Guaranteed like-for-like fixed per user pricing for the term of the contract**
  - Additional users will be charged for incrementally
  - Additional features and capabilities beyond “like–for-like” sold separately
- **Hardware upgrades & maintenance are not included**

The “Evergreen” of Software…

Software Release Subscription (SRS)

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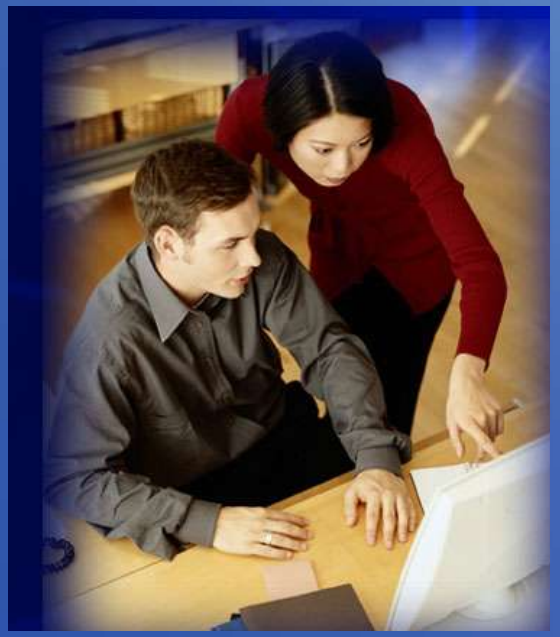
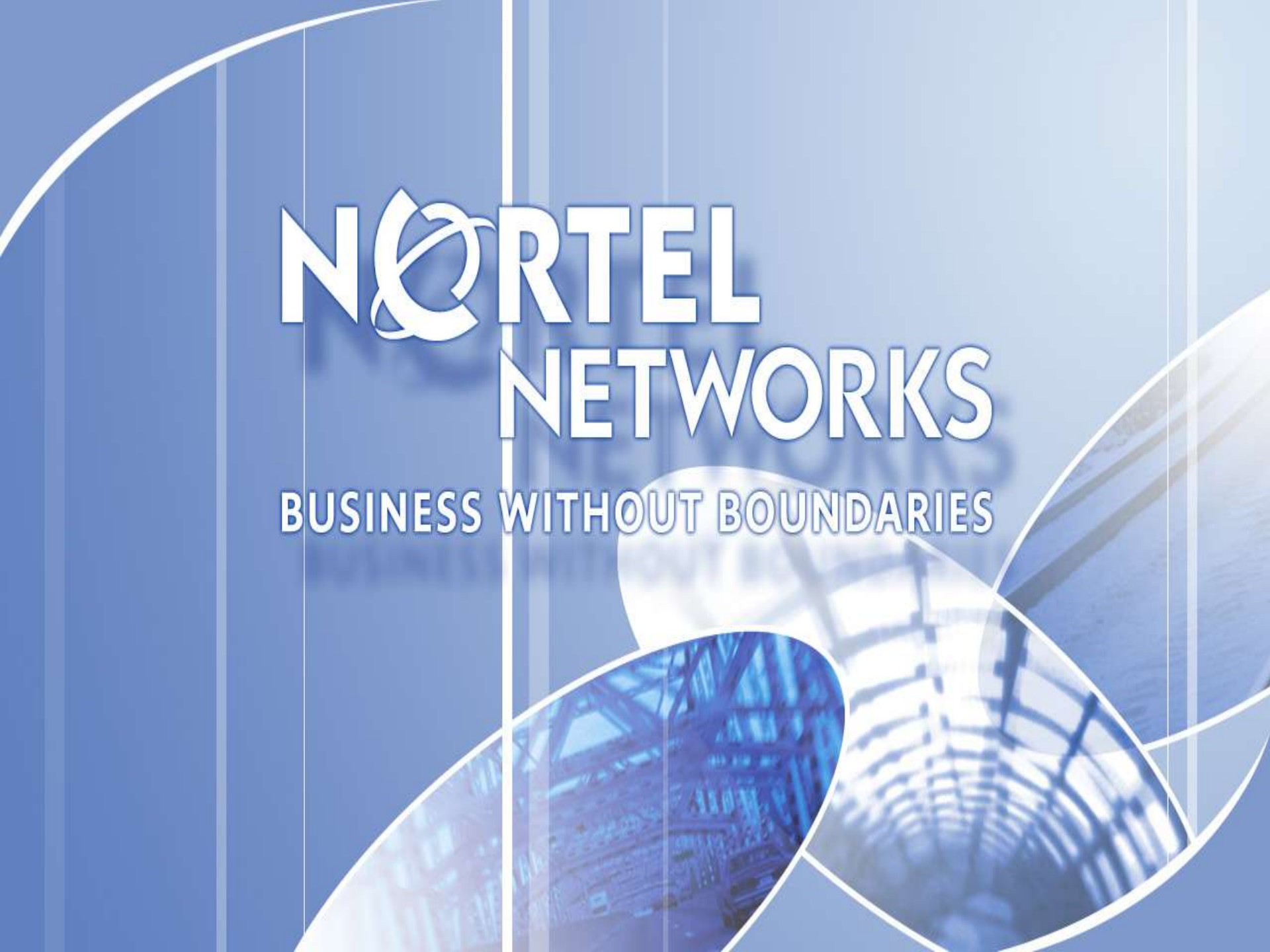
- Customer Value
  - Lower Total Cost of Ownership
  - Protect Network Value
  - Level Purchase Plan
    - Like-for-like SW upgrades at today's prices
  - Peace of Mind
    - Maintain most current operating software
    - Keep pace with competitors by taking advantage of new enhancements
  - Better Planning
    - Enables long-term migration planning
    - Provides budget planning forecast

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