Communication Network Challenges

Start small....

..........Think big....

.........Scale fast

Most Enterprise Communications Users Dissatisfied

- **69 percent of respondents were dissatisfied with their ability to access their messages speech, fax, email, SMS… at any location with any preferred end-device**

- **63 percent agreed that their communications end-devices don't always use the most suitable and most reasonably priced infrastructure**

- **76 percent reported that the communications end devices that they currently use do not enrich their daily working life with regard to features and functionality**

- **62 percent said that the communications infrastructure deployed in the company is not always reliable and had suffered a breakdown in the past six months that negatively affected the business**

- **69 percent disagreed wholly or in part that their companies' communications infrastructure embraces open standards and supports the collaboration of various providers and the integration of IT processes**

- **75 percent consider support and response by their company's communications service provider to be inadequate when adjusting to changes within the organization**
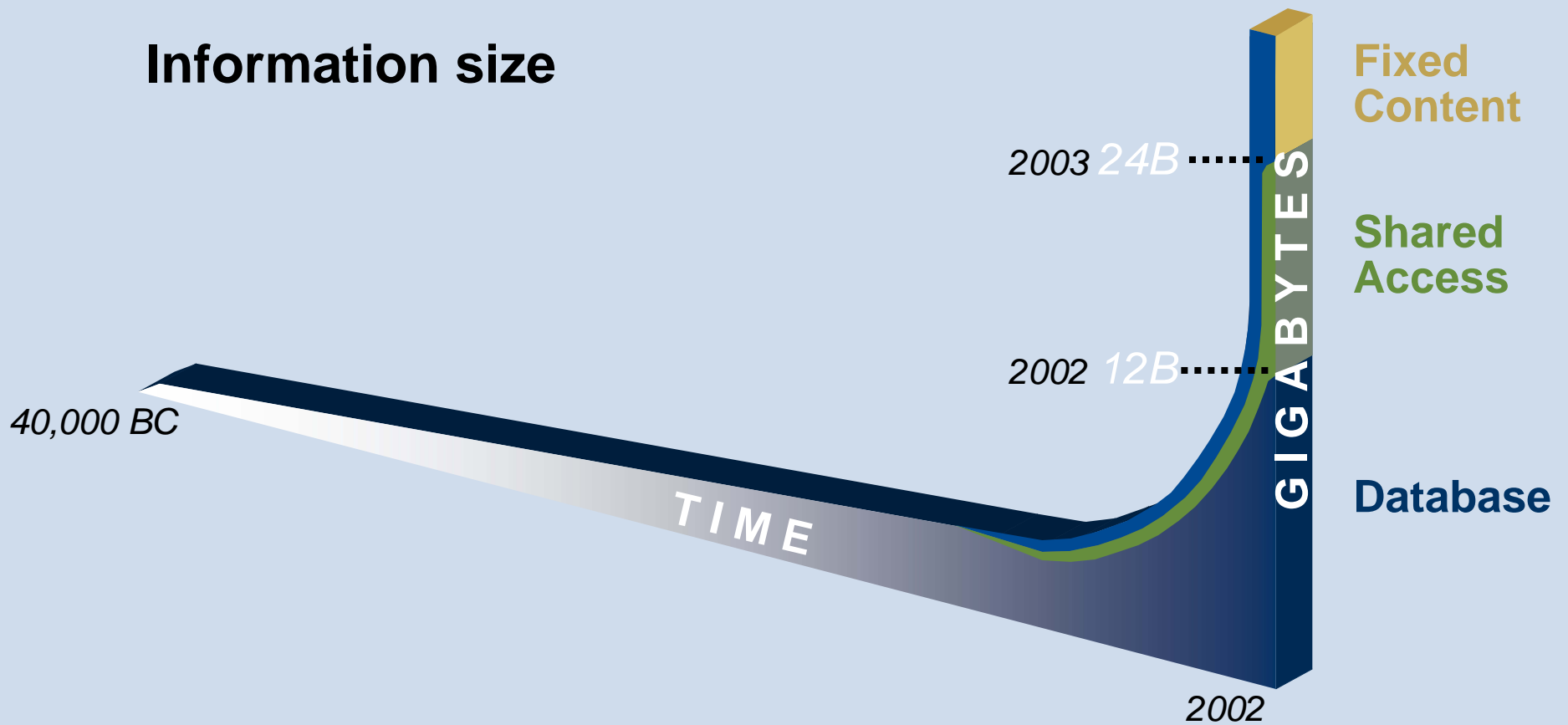
Communication cost bench marking

- **The monies that enterprises spend on telecom services, such as local and long distance, mobile phone plans, calling cards, conferencing, and data networks, have long been considered a <u>cost of doing business.</u> However, in today's cost-conscious market, no category of spend is sacred, and telecommunications spending continues growing in complexity and volume.**

- **A key component of the telecommunications cost management challenge is the variety of services being used by many different roles in the company. Enterprises have insufficient insight into actual usage and contract terms and compliance, with few organizations having a closed-loop process for sourcing, managing, and optimizing all telecommunications costs on an ongoing basis.**
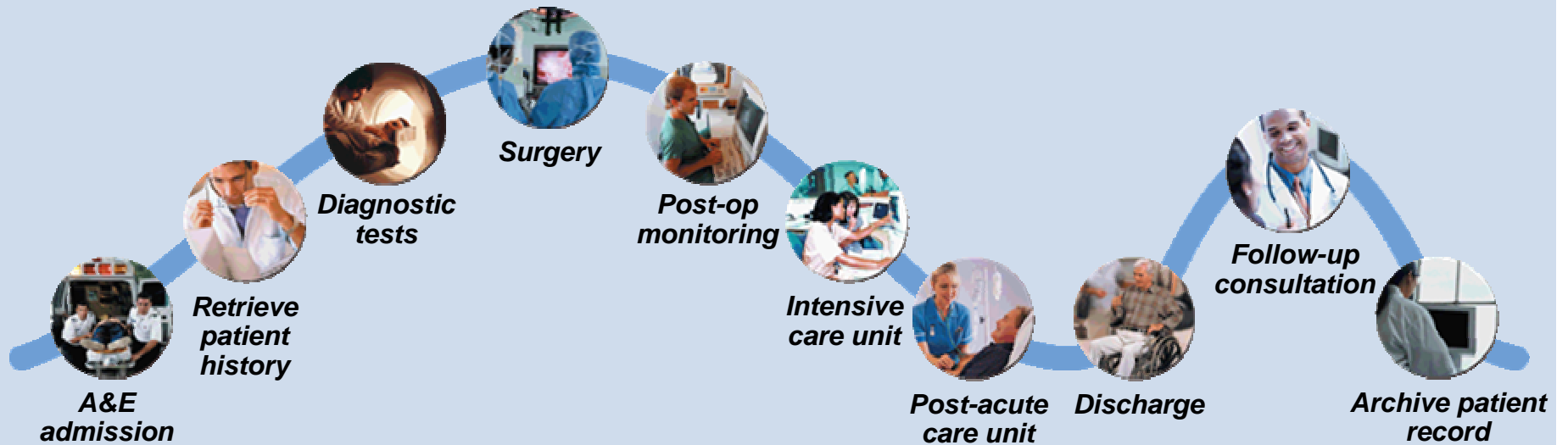
Communication cost bench marking

- **Those companies that leveraged technology to manage telecom costs realized average savings of 26.1%, whereas those companies that did not leverage technology reported 18.6% in average savings**

- **Not leveraging technology to support telecom cost management is causing the typical large organization to leave $8.7 million on the table. Midsize companies are forsaking $1.95 million.**

Its all about communication & information

Information size

Fixed
Content

Shared
Access

Database

GIGABYTES

2003 24B

2002 12B

40,000 BC

TIME

2002

Data Source: UC Berkeley, School of Information Management and Systems

Communication @ Hospital

A&E admission

Retrieve patient history

Diagnostic tests

Surgery

Post-op monitoring

Intensive care unit

Post-acute care unit

Discharge

Follow-up consultation
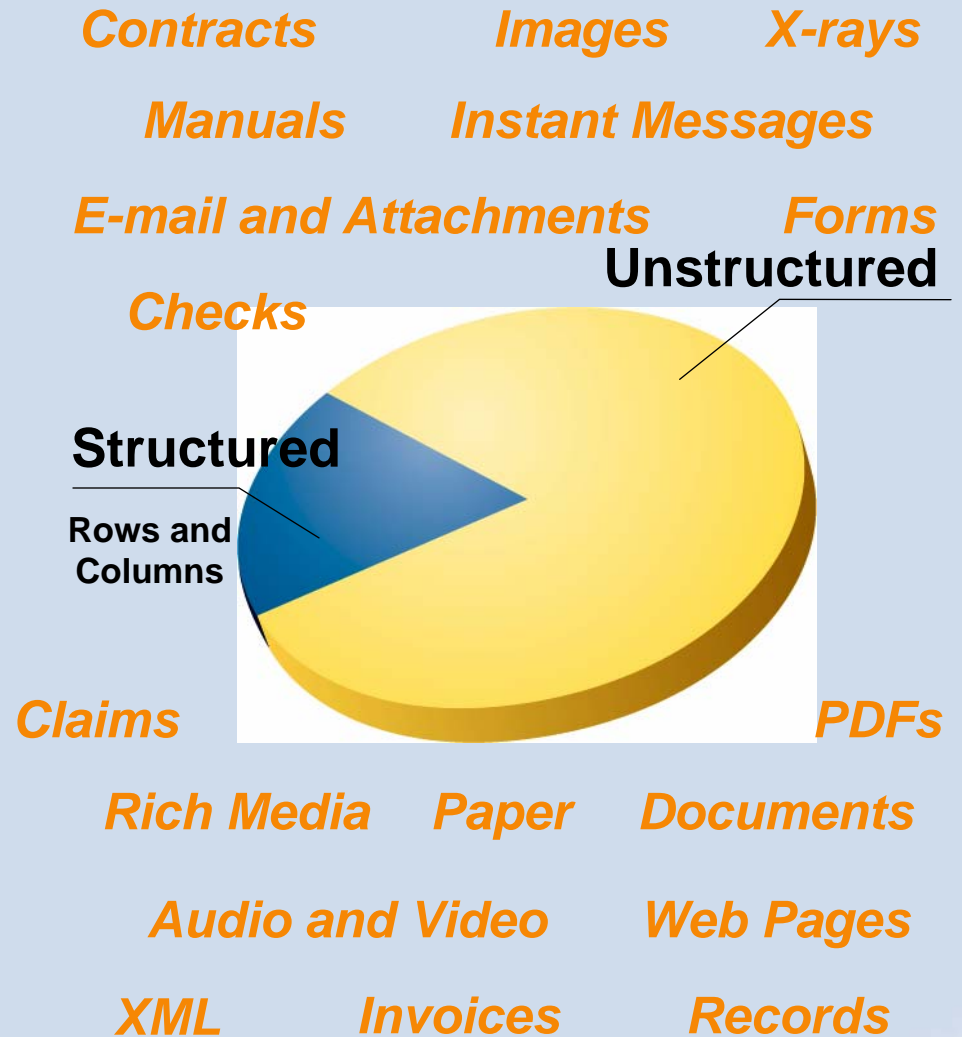
Archive patient record

Time

CHANGING INFORMATION VALUE OF A PATIENT'S MEDICAL RECORD
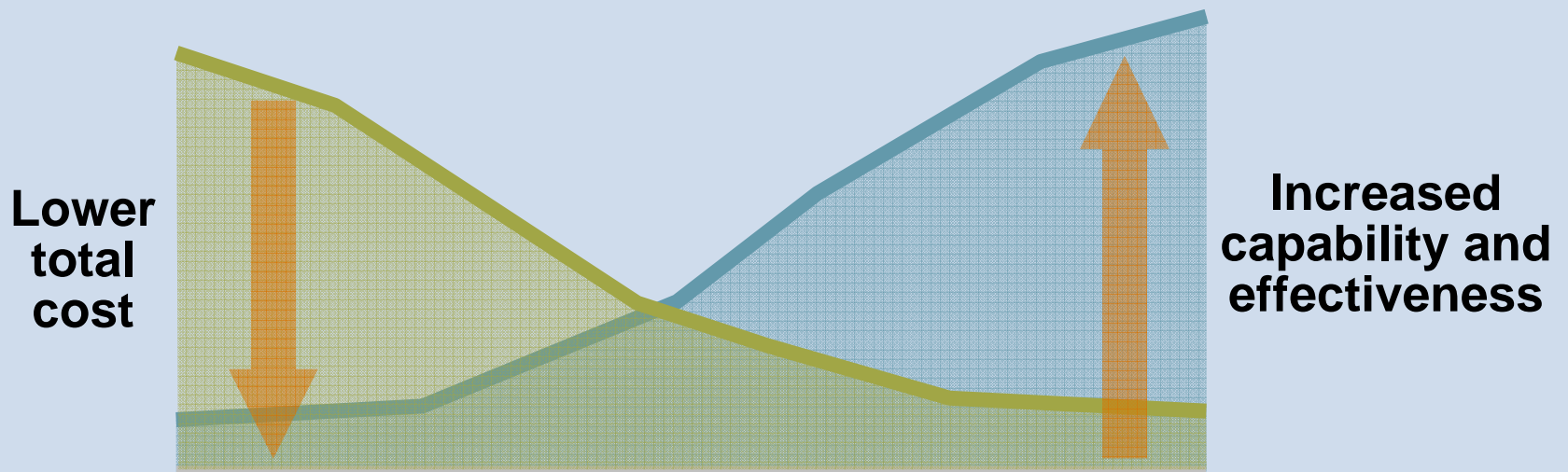
Communication types

- **The amount of information is growing every year**

- **Includes structured, semi-structured, and unstructured data**

- **Over 80% of enterprise information is unstructured**
  Source: Fulcrum Research

Contracts   *Images*   *X-rays*

Manuals   *Instant Messages*

E-mail and Attachments   *Forms*

Unstructured

Checks

Structured

Rows and
Columns

Claims   *PDFs*

Rich Media   *Paper*   *Documents*

Audio and Video   *Web Pages*
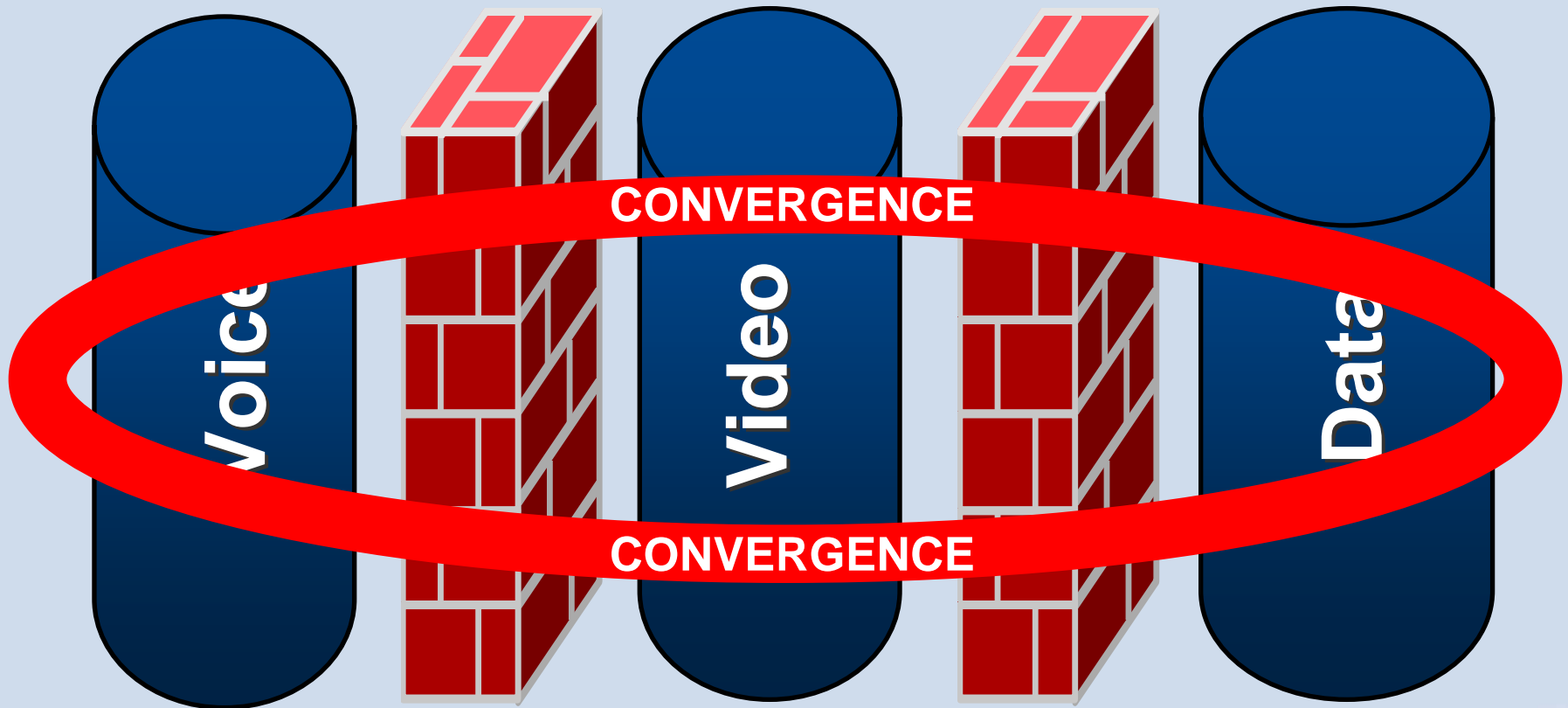
XML   *Invoices*   *Records*

Effective communication system?

Ensuring your company's information
is in the **right place**, at the **right time**, for the **right price**

Lower total cost

Increased capability and effectiveness

Convergence-*Traditional Approach to Business Challenges*

Voice Video Data

CONVERGENCE

CONVERGENCE

Communication Convergence for SMBs

- **AMI predicts that VoIP will begin a long transition from a market-driven attraction of all-in-one VoIP appliances that supports voice/unified messaging/security/mobility with provisions for remote management and desktop/server collaboration application integration.**

- **AMI forecasts that IP PBX penetration amongst SMBs will grow by 67% in 2007 while penetration in hosted VoIP-based systems will grow by 75%.**

- **Everything rides the pipe, video, data, voice**

- **Enterprise Application Integration**

- **Harnessing Wireless as part of the pipe**

- **Continued reduction in cost of gear**

Convergence of Three Technologies

Technologies:
- **Information Management**
- **Information Access and Delivery**
- **Information Storage**

Characterized by:
- **Massive Growth**
- **Virtualization**
- **Consolidation**

Base Infrastructure:

Computing	Networks	Storage

On top of which runs:

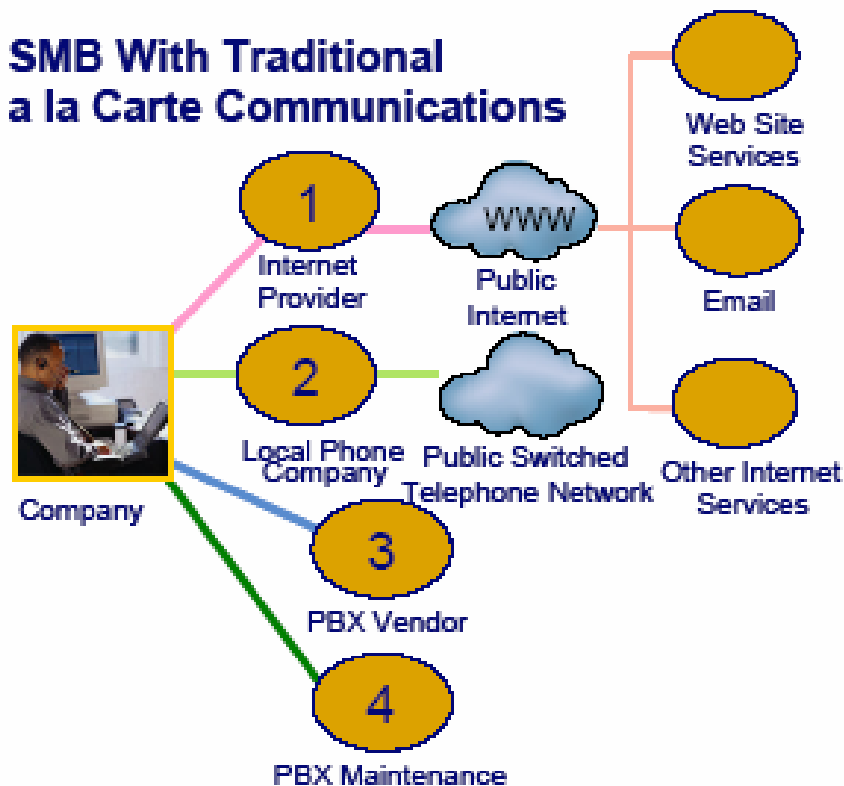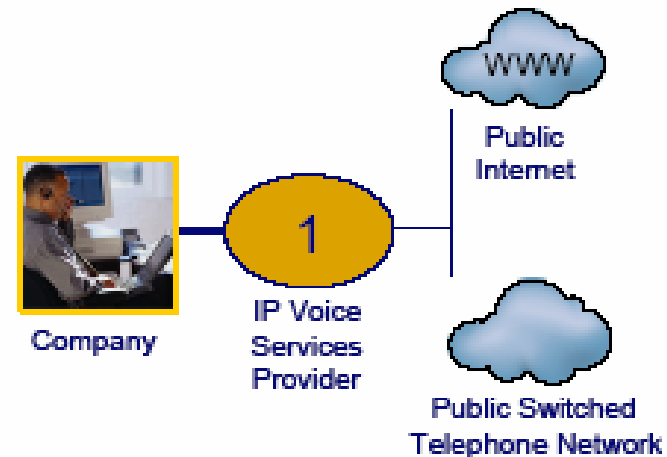| Business Applications |
|---|
| Information Management |
| Data Management |

Convergence-Growth Factors

- **Reduced administration and hard communications costs**
    - No moves, adds, changes
    - Management of common infrastructure
    - Single Point of User Management
    - Dramatic reduction in overhead costs
- **Reduce cabling required under converged network**
- **Common support team**
- **Reduced long team upgrades**
- **Telco line access, usage, and management savings**
- **Reduced System expansion costs**
- **Reduced costs for extending applications to additional/remote sites**
- **Improved Security by reducing com to one interface**

Changing Landscape

SMB With Traditional
a la Carte Communications

Web Site Services

1 Internet Provider

WWW Public Internet

Email

Company

2 Local Phone Company

Public Switched Telephone Network

Other Internet Services

3 PBX Vendor

4 PBX Maintenance

SMB With Hosted IP Voice

WWW Public Internet

Company

1 IP Voice Services Provider

Public Switched Telephone Network

Benefits
- Single Point of Accountability
- Redundancy and Diversity
- Eliminate Capital Cost and Lower Ongoing Costs
- Productivity Improvement
  - Employees
  - IT Managers
  - Office Managers
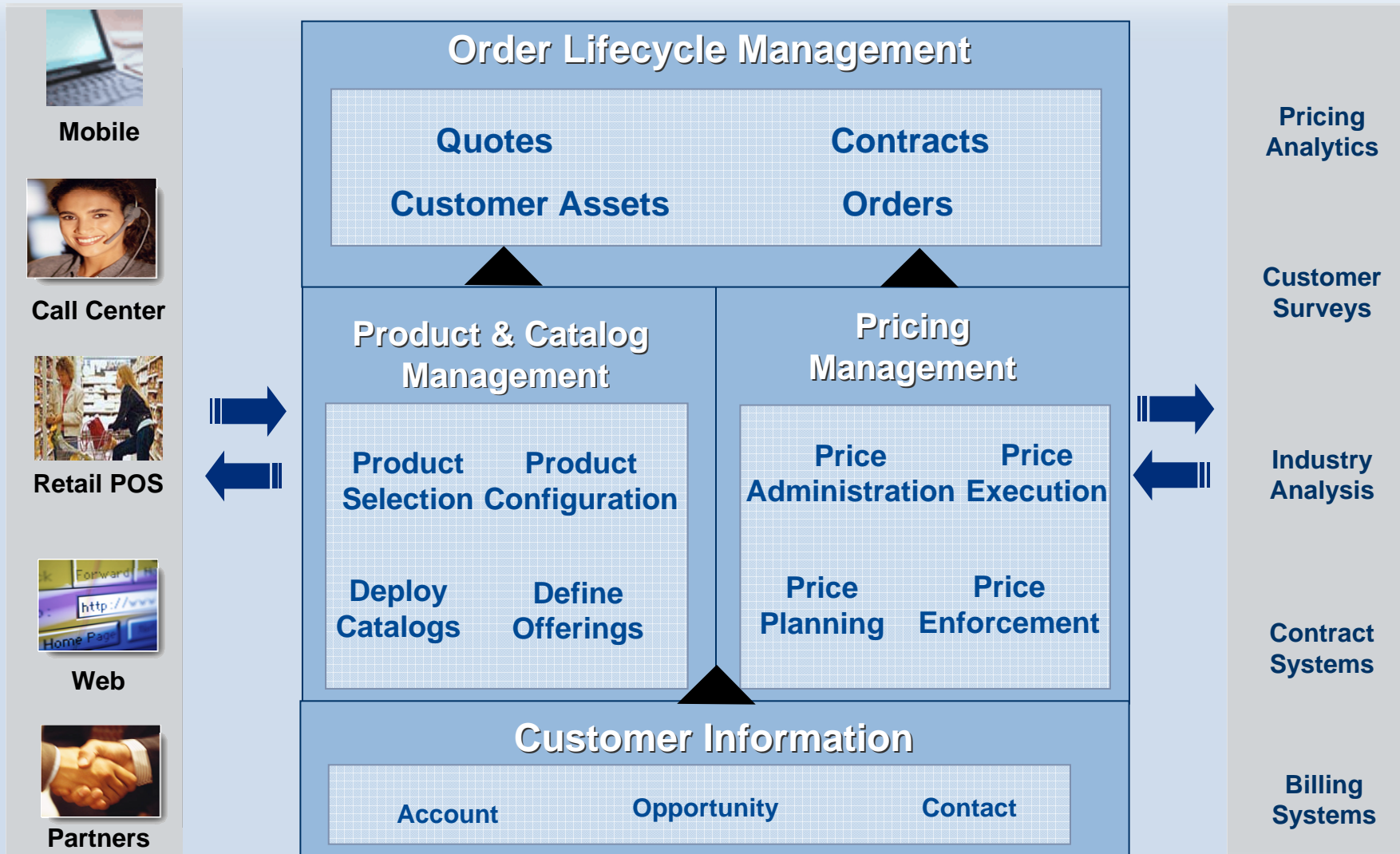
Source: IDC, 2005

Convergence--*Strategic Applications*

- **IP Telephony**

- **Unified Messaging**

- **Personal Assistant**

- **CRM Interfacing & Integration**

- **Centralized Call Processing**

- **Identity Management**

- **Software Management integration**

Convergence-*Means Increased Productivity to End User*

- **Increased Employee productivity.**

- **Message access anywhere, any way, anytime.**

- **One-stop message management.**

- **Fax, Email, Voicemail, Contact, schedule and Task Information in one User Interface.**

- **Customer satisfaction.**
  - Increases speed and quality of responses to all types of communication.
  - Allows for flexible communication flow.

- **Cost reductions.**
  - Moves/adds/changes are simpler and faster.
  - Single infrastructure to manage and maintain.
  - Single transport infrastructure for all media: Data/voice/video.

Customer centric communication process

Mobile

Call Center

Retail POS

Web

Partners

Order Lifecycle Management

Quotes   **Contracts**

Customer Assets   **Orders**

Product & Catalog Management

Product Selection   **Product Configuration**

Deploy Catalogs   **Define Offerings**

Pricing Management

Price Administration   **Price Execution**

Price Planning   **Price Enforcement**

Customer Information

Account   **Opportunity**   **Contact**

Pricing Analytics

Customer Surveys

Industry Analysis

Contract Systems

Billing Systems

IP Convergence – Promise & Problems

The promise is clear….

- Dramatically lower costs
- Ubiquitous network reach & interoperability
- New applications
  - **Mainstream VoIP today**
  - **Call center, rich-media, integrated desktop, etc…)**

… But so are the challenges.

- VoIP quality isn't good enough for widespread business use
- Latency-sensitive applications (Citrix, video, VoIP…) need protection from FTP and audio/video streaming
- Many business applications are converging onto the IP WAN –each with specific performance needs
- IP convergence applications require an integrated suite
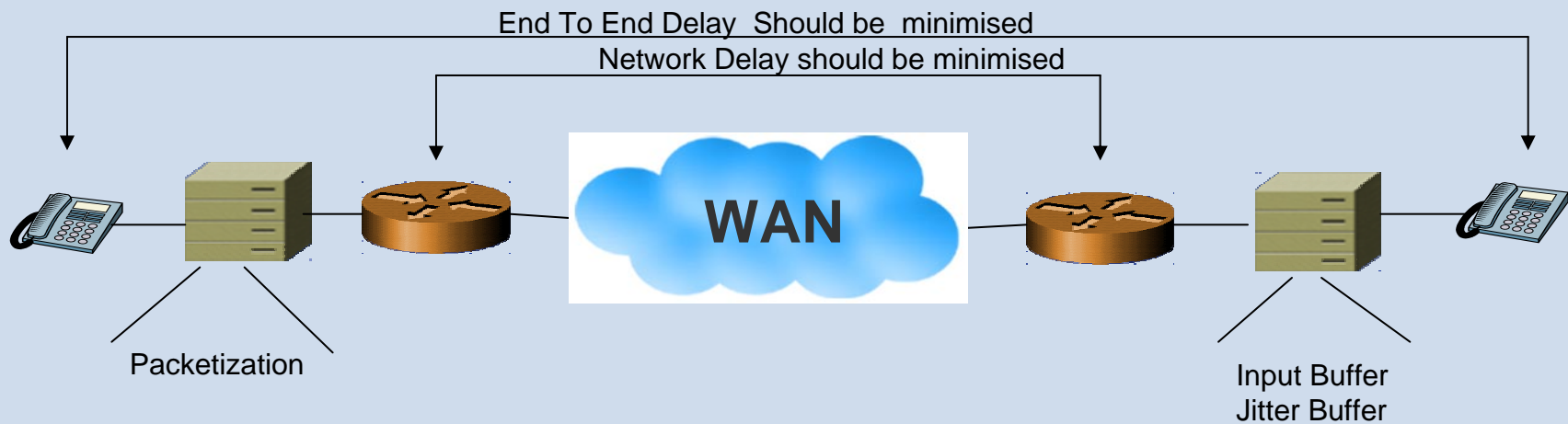- New applications, growth must not compromise performance, add cost

An Integrated, Cognitive IP Network Solution

- Optimize IP Application Performance
  - Per user, per session application guarantees
  - Toll-quality VoIP, jitter free video
  - Business application acceleration

- Minimize Total Cost of Ownership
  - WAN optimized bandwidth efficiency
  - Seamless integration with existing network
  - Ease of deployment and operation
  - Rapid ROI for SMB

- Enable IP Convergence
  - Per flow converged IP applications
  - Secure, assured converged access

Integrated application

- Visibility

- Performance

- Accuracy

- Scalability

- Manageability

- Deepest IP application discovery

- Real-time traffic stats, reporting, policy adjustment

- Single high-performance classification engine

- Comprehensive, integrated IP technology

- Multiple polices per flow

- good flow granularity (1kbps.), high bandwidth accuracy

- High bandwidth efficiency

- Solution scalable

- Easily adjusts to new applications, new policies, growth

- Auto-discovery, adaptive policy management, central policy management

VoIP requires tightly controlled delay, jitter, packet loss and admission control for each call
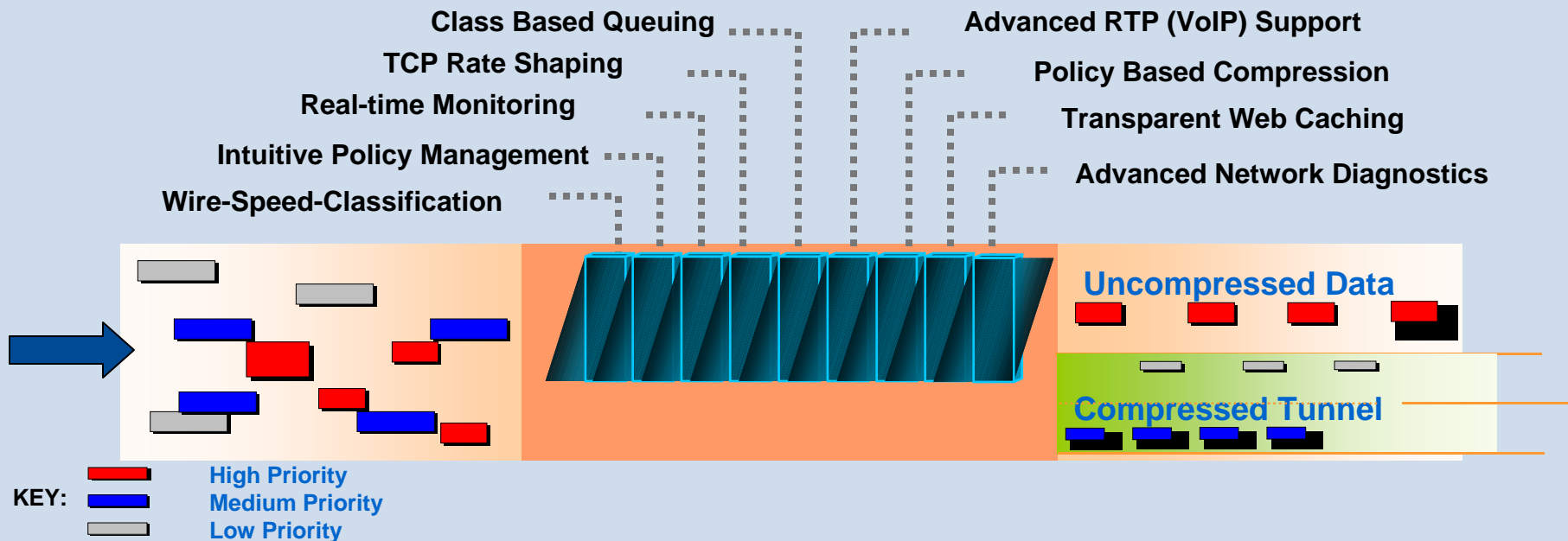
End To End Delay Should be minimised

Network Delay should be minimised

WAN

Packetization

Input Buffer
Jitter Buffer

Factor	Reason	Impact
Delay	Excessive Queuing	Voice degenerates to half duplex
Jitter	Mix of Small and Large packets Improper scheduling	Voice sounds like a bad cell phone call
Packet Loss	Improper queuing	Poor voice quality

What does SMB need

- Scalable from small branch to large enterprise data centers
- Best-in-class compression efficiency ("real world" scenario: 240%)
- Real-time discovery, monitoring and performance reporting
- Deployable in less than thirty minutes
- ROI typically in less than six months
- Deliver granular and accurate per user, per session guarantees
- Optimize WAN bandwidth with >95% efficiency
- Scale from SMB/remote office to large enterprise locations
- Enable mainstream VoIP deployment today
- Position the enterprise for true converged IP applications

An Integrated Traffic Management Architecture

Class Based Queuing
TCP Rate Shaping
Real-time Monitoring
Intuitive Policy Management
Wire-Speed-Classification

Advanced RTP (VoIP) Support
Policy Based Compression
Transparent Web Caching
Advanced Network Diagnostics

Uncompressed Data

Compressed Tunnel

KEY:
High Priority
Medium Priority
Low Priority

- **Layered classification and policy enforcement engine**

- **Capability to integrate Multiple policies and enforce per flow**

- **Accurate per session, per user Quality of Service/Quality of Experience:**
  - Precise throughput, priority, latency, jitter, MOS, etc.
  - Performance as defined by the end-user/customer

Communication tech adoption Pricing Drivers

Pricing primarily has to be:

- Scalable
- Flexible
- Enforceable

Pricing then has to:

- **Reflect Value (Communications, perspectives, end to end solutions)**
- **Incorporate feedback from Analysis**
- **Include services bundling**

Reflect industry trends:

- **Driving recurring revenue streams: subscription, maintenance**
- **Utility based: How many times system is accessed or used vs number of users**

Serve different segments:

- **Small and Medium Businesses**

- **Support Services & Custom Solutions Development**
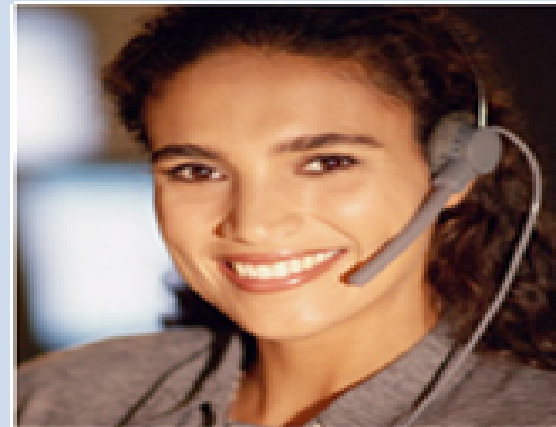
Convergence
A Real-World Business Case Study

Area of Savings	Financial Impact

Monthly Phone Bill Savings
   Long Distance
   Collapsed Trunks
	$245,000

Video Conferencing	**$ 50,000**
Outsource Audio	**$15,000**
Cellular Usage	**$50,000**
Payback Period	**14 months**

Results

- **Operational Efficiencies**
  - Lower order costs by reducing quote and order errors by 35%
  - Reduce order cycle time up to 37%
  - Reduce customer inquiries & collections by 50-80%
  - Created a consistent repeatable set of business processes
  - Deployed a low touch, fully integrated set of applications
  - Increased accuracy & completeness of order data by 90%
  - Improved visibility into customer asset base & deployments. Identification of up-sell & cross sell opportunities
  - Increase orders processed per employee by 15%
  - Manage order process with 47% less staff

Your Next Steps to Achieve the Benefits of convergence

Step 1   **Discover What You Have**

- **Make informed decisions, reclaim what you're not using**

Step 2   **Consolidate with Network Convergence**

- **Lower cost through better utilization**

Step 3   **Implement best cost Solutions**

- **Watch your ROI**

WHAT T O LOOK FOR I N A SUPPLI E R ?

- **Experience** — proven solutions and customer case studies
- **Legacy and future PBX knowledge** — the ability to take you from where you are to where you want to be
- **Industry focus** — understanding of your business
- **Growth** — the supplier must be able to grow along with your business
- **Financial viability** — no risk for downtime service or unsupported technology

given the long-term nature of these contracts

- **Contract type** — should reflect the critical nature of the communication solutions
- **Support** — guaranteed levels of service and security
- **Relationship management** — a dedicated person at the specialized organization to interact with your business
- **Customer service** — one point of contact, one bill
- **Wide range of solutions and geographic coverage** — supporting choice, change and growth