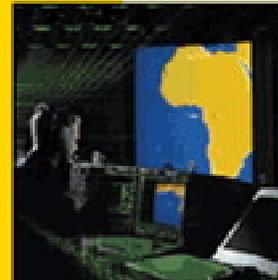


Northrop Grumman Enterprise Infrastructure Transformation

For
**Air Force Enterprise IT Services Industry
Forum**

By
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Chief Information Officer
Northrop Grumman Information Technology**

IT



- **Overview**
- **Infrastructure Integration Results & Lessons Learned**
- **Discussion**

Leadership in Key Business Areas



2003E
Revenue

~\$6.1B

~\$4.7B

~\$3.7B

~\$5.2B

~\$3.9B

~\$2.5B

- Airborne Radars
- C⁴ISR
- Electronic Warfare
- Navigation & Guidance
- Military Space
- Homeland Security

- C⁴ISR
- Government IT Infrastructure
- Science & Technology
- Information Security/ Assurance
- Enterprise Solutions
- Homeland Security

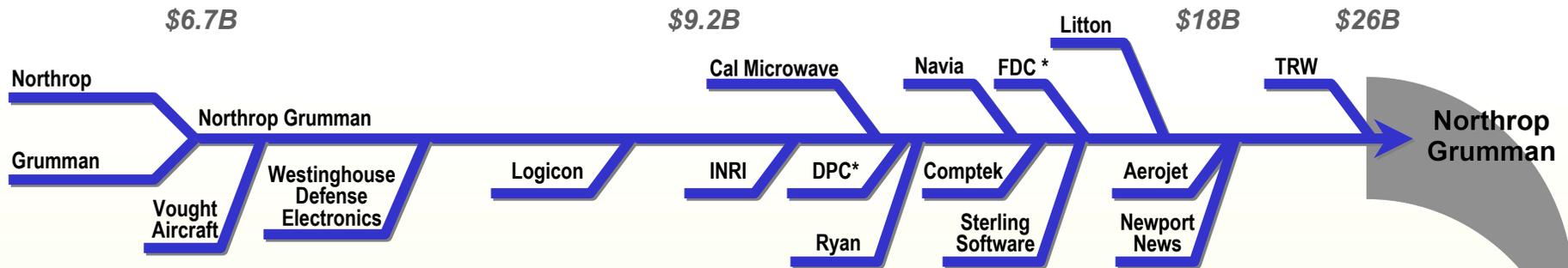
- Tactical Aircraft
- Long Range
- Unmanned
- Airborne Early Warning & Surveillance
- Air-to-Ground Surveillance
- Airborne Jamming

- Naval Systems Integrator
- Aircraft Carriers
- Attack Submarines
- Surface Combatants
- Amphibious Assault Ships
- Auxiliary Ships

- Command, Control and Intelligence
- Digitized Battlefield
- ICBM Sys. Mgmt.
- Missile Defense BMC³
- Defense/Civil Software Application Dev.
- Information Warfare
- Homeland Security

- Intelligence, Surveillance, Reconnaissance
- Laser Weapons
- Military SATCOM
- Scientific Satellites
- Military Avionics
- Cutting-edge Micro-electronics

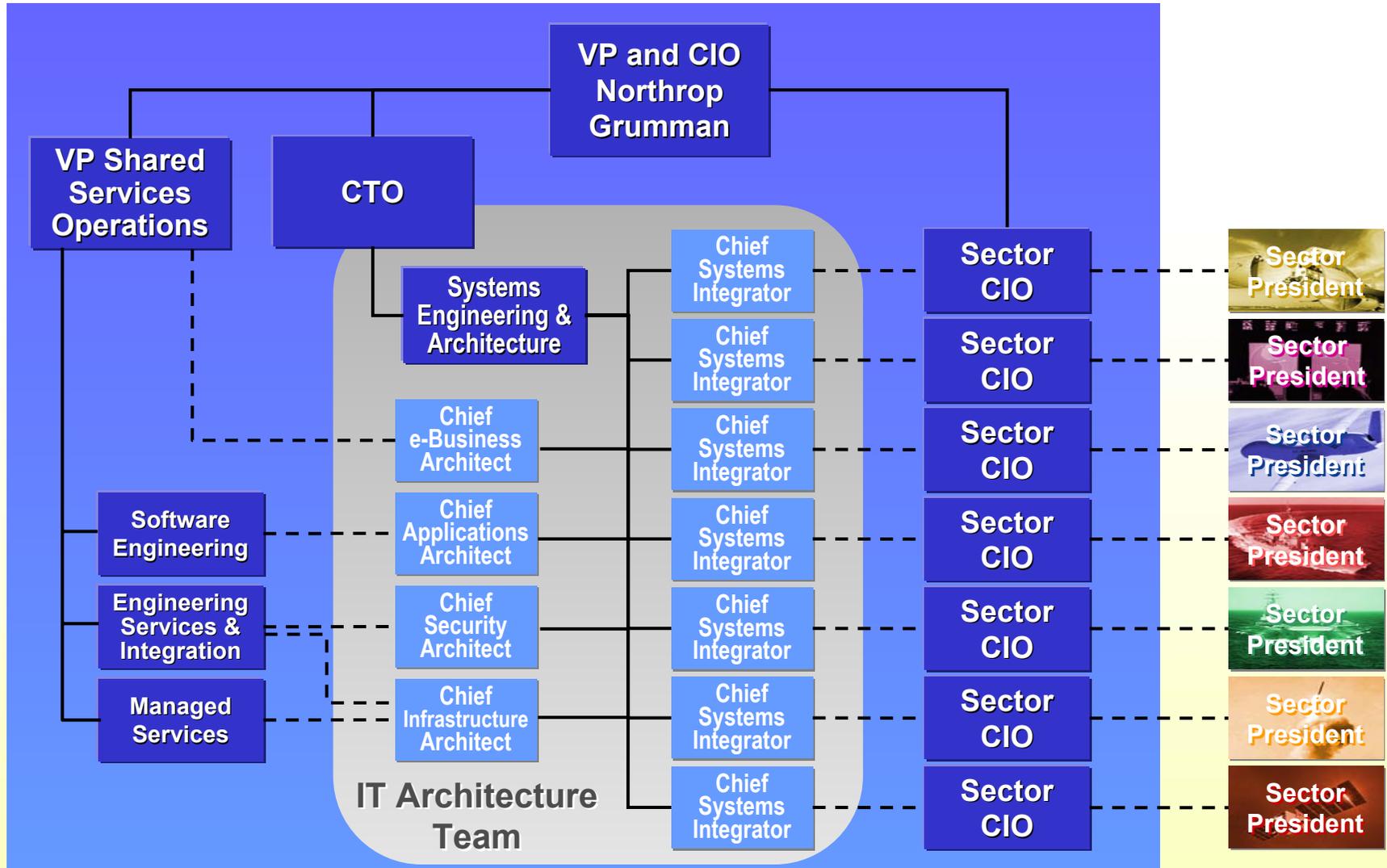
IT Implications Driven by Consolidation



- Systems Consolidation (ERP)
- IT Cost Reductions
- Infrastructure Standardization

- **We have a centralized IT infrastructure organization & processes**
- **Our Acquisition Integration scope is the IT Infrastructure**
- **It is a natural extension of Internal Information Systems' core role in enterprise.**
- **Business alignment is done at the sector-level**

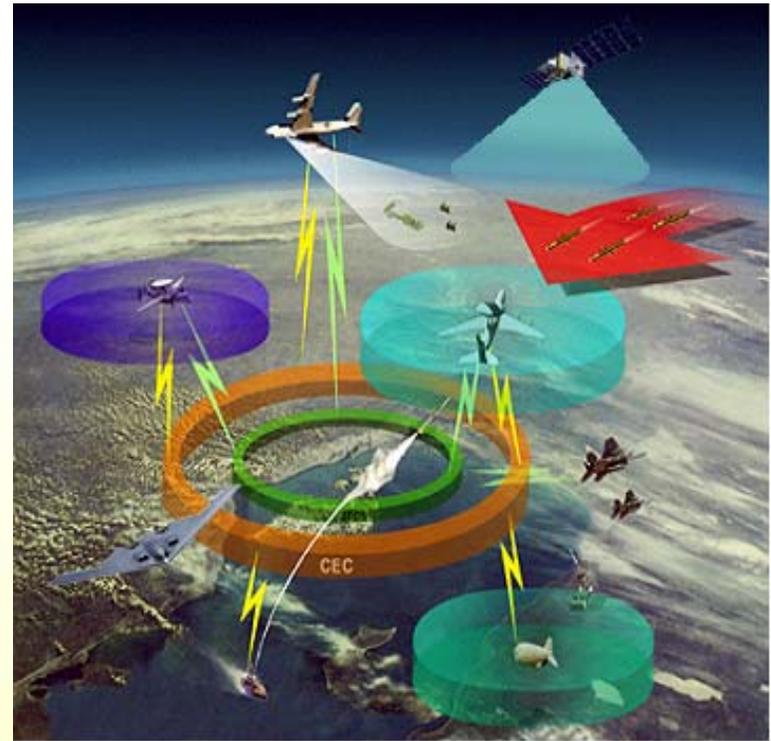
Best Practice: How We Manage Our Strategy



- **Consolidation Strategy Within the Sectors Supported By a Shared Enterprise Infrastructure**

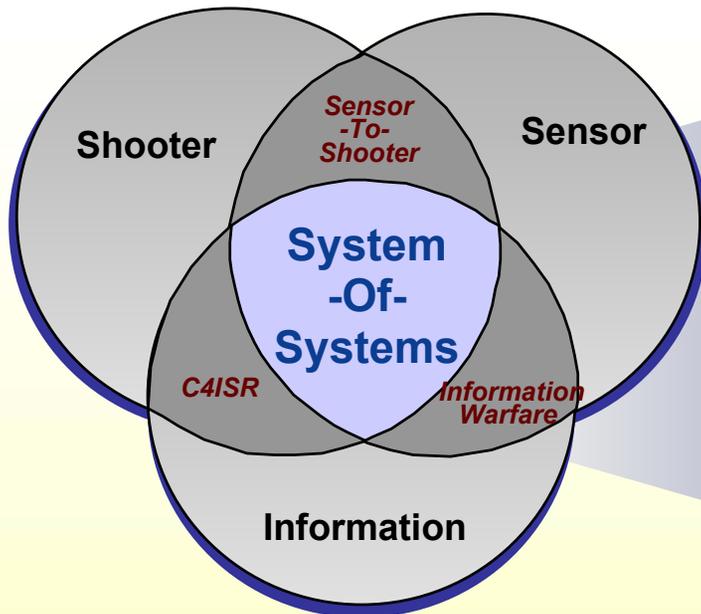


- **Transform Portfolio of Technologies Essential to Provide System-of-Systems, Network Centric Warfare Across All Platforms and Services**
- **Leverage Advanced Technologies and Human Capital Across the Company**



Requires An Agile, Flexible IT Architecture

IT Implications Driven by Network Centric Warfare



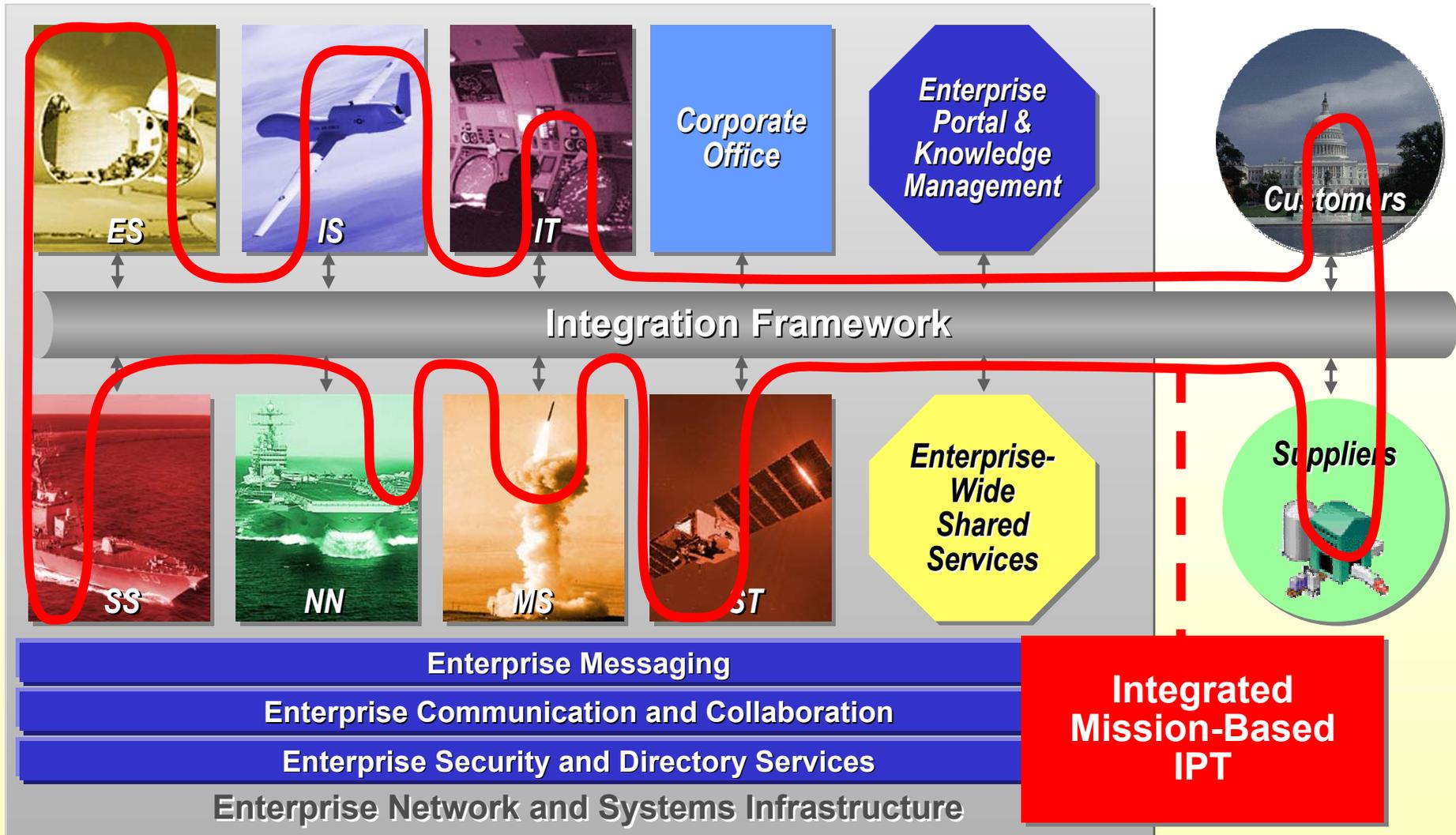
Sea → Land → Air → Space → Cyberspace

Collaboration Across & Beyond the Enterprise

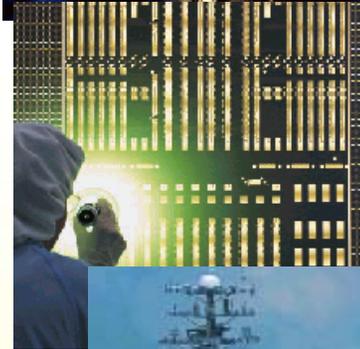
Program Driven Plug and Play IPTs

Functional Integration Across Business Units and/or Enterprise

Agile IT Architecture



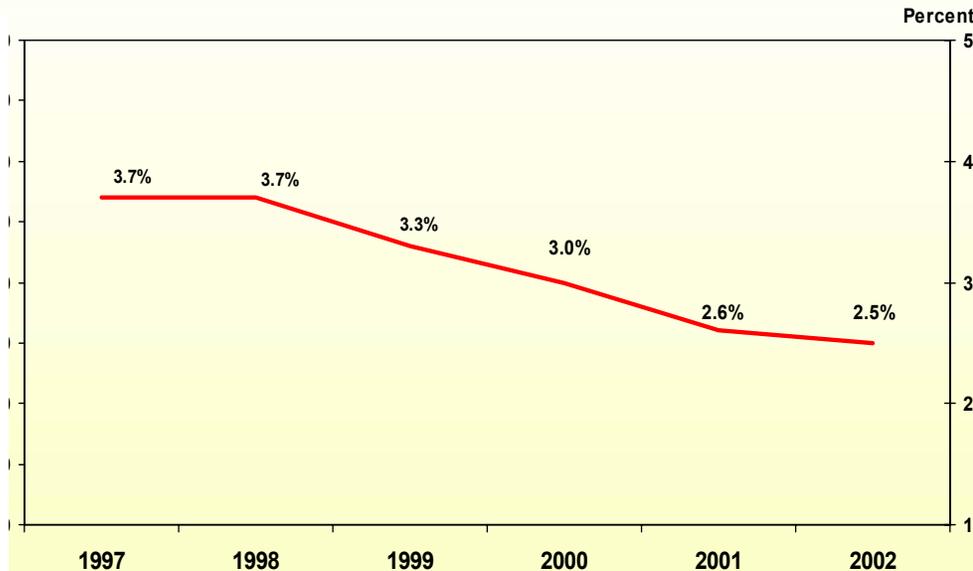
- **An Agile IT Architecture Is Required to Sustain Change**
- **Technology-Enabled Integration of the Enterprise Has Significant Opportunity**
- **Basic Building Blocks Require An Enterprise Approach To Maximize Benefit**
- **Enterprise-wide Knowledge Management and Collaboration Solutions Will Support Interaction and Innovation**
- **Challenges Are Beyond Technology**
 - Technology Is an Enabler of Business Transformation
- **Business and IT Must Work Together As a Team to Achieve Transformation**



- Look and act like one company
- One quick, secure access to computing resources from anywhere
- One standard network protocol, calendar, desktop image
- One way to collaborate
- Be Common, consistent... but not identical

Synergy/Agility

Savings



- Reduced recurring cost of IT from 3.7% of sales to 2.5% of sales
- Definitive return on investment
 - Litton integration investment of \$9 million enabled over \$58 million of recurring annual savings

17,000 People



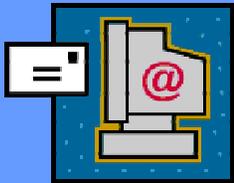
125,000 People

Infrastructure Integration Results

- Consolidation of Over 30 Data Centers in the Last 8 Years, Savings in Excess of \$100M; 93% Reductions of Headcount
- Call Centers: dozens to 1
- E-mail: 8 different systems to 1 (MS Exchange)
- Desktop COE: distributed to centralized; one COE
- Wide Area Network: hundreds of individually operated segments to one Global (IPWAN) network
- Internet Access: over 50 marginally protected points of presence to 3 very secure, redundant 'border crossings'
- In it's August 2002 edition, CIO magazine named Northrop Grumman one of its "CIO 100" for impressive progress made toward enterprise integration



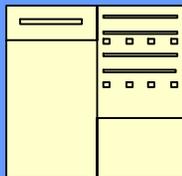
68,000
Desktops



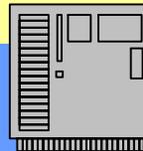
57M E-mails/month
85,000 Accounts



300 Enterprise
Servers,
3,500 Distributed
Servers



39+ TB of
On-line Storage



1,700
Mainframe MIPS



107,000
Mainframe Tapes
Managed



8,000
Service
Calls/week

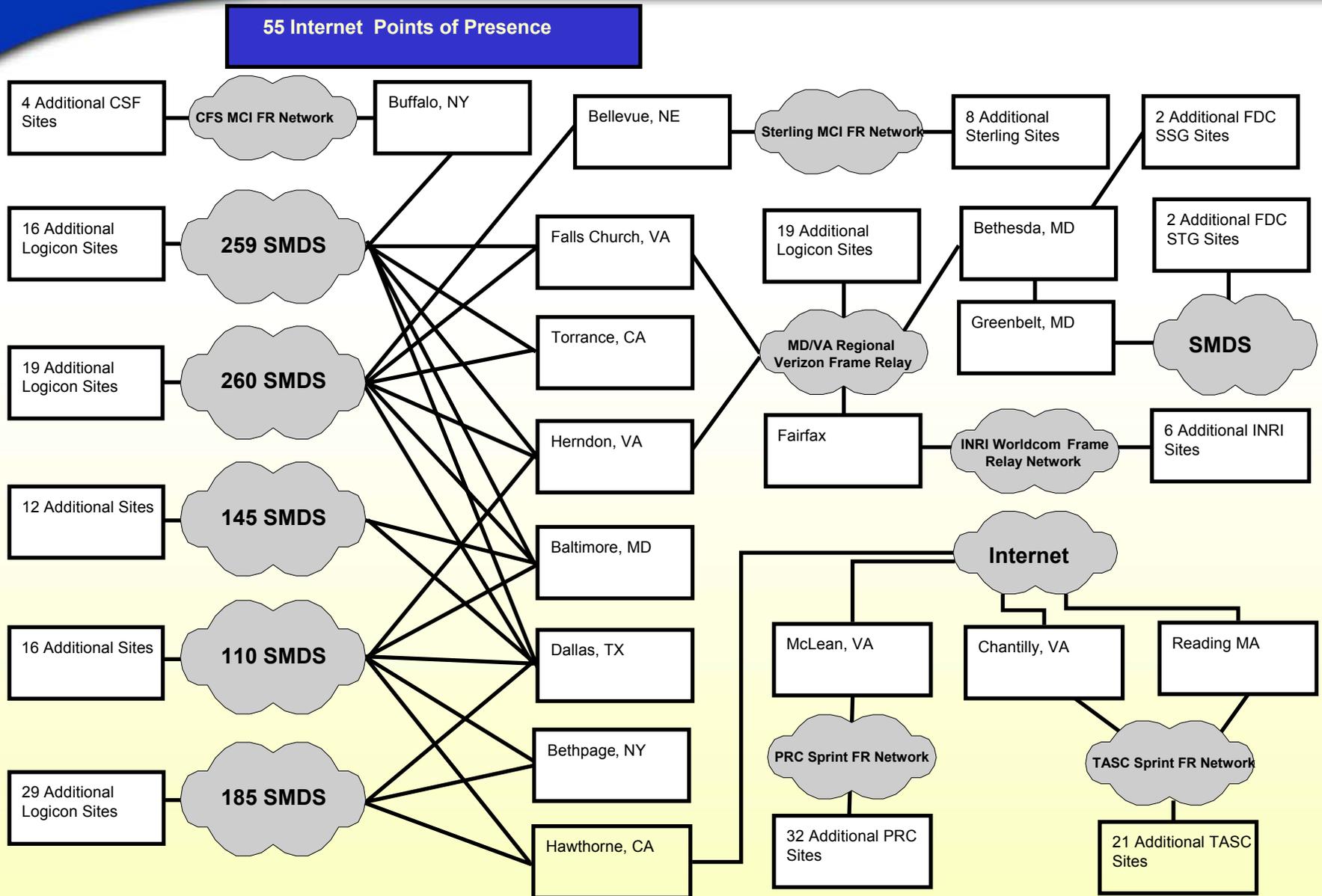


44,000
Network
Nodes



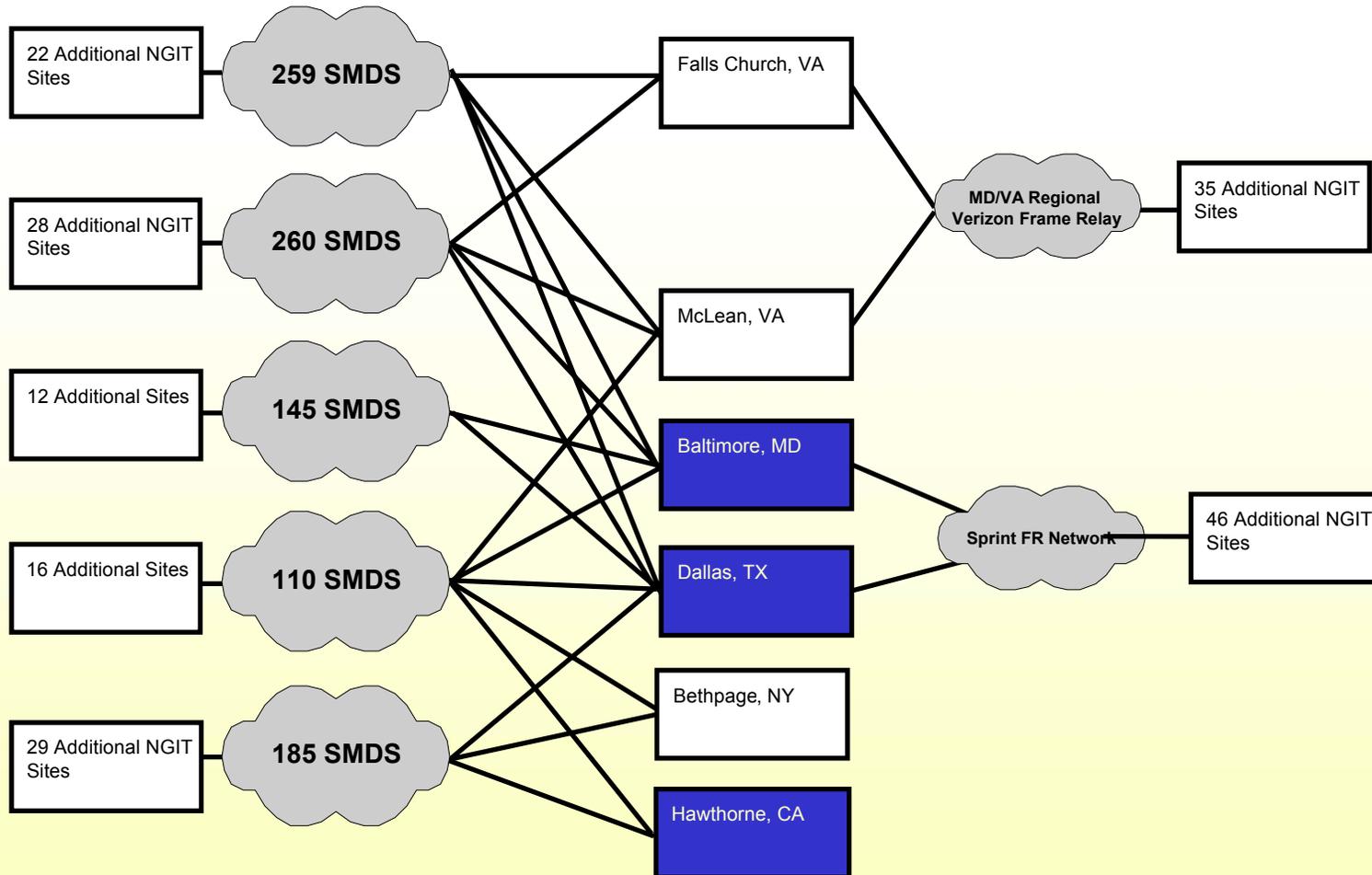
1,000 Web
Sites

NG Network, Early Fall 2001



Enterprise Internet
Point of Presence

Redundant, high bandwidth, well protected exit to the internet



- **Transformation must be driven from the top**
- **Mature repeatable processes are essential**
 - Our CMMI Level 5 Certification is part of our culture and really helps
- **People will resist – count on it**
- **Things will go wrong – plan for it**
- **The best plans change at the moment of engagement**
 - We are open to changing our processes - integration is dynamic & evolutionary, never static.
- **Communicate, communicate, communicate**
 - Most choke points can be tracked back to lack of understanding

- **Technology is the easy part**
 - Our team is very qualified (they've done it repeatedly)
- **Culture, communications and politics are not easy**
 - Appoint an “ambassador” to mitigate issues
- **No two integrations take the same amount of time**
 - Culture and complexity determine the timeline not size
- **Giving people the tools doesn't mean they'll get it**
 - Plan to train even the most astute
- **Never do it half-way**
 - It's harder and more costly later...and later always comes.

- **We are Process Focused**
 - The process has been refined over time, but the ultimate objective has not changed since 1994.
- **Everyone likes it when it's over**
 - Everyone hates it while its happening
- **We take our lessons learned to heart**
- **We look for and deploy best practices that make good business or mission sense**
- **We save lots of money!**
- **The advantage of a common, integrated environment that can be accessed anytime from anywhere is worth the journey....**

Questions – Comments?