IPv6 in the Enterprise
The Network & Beyond

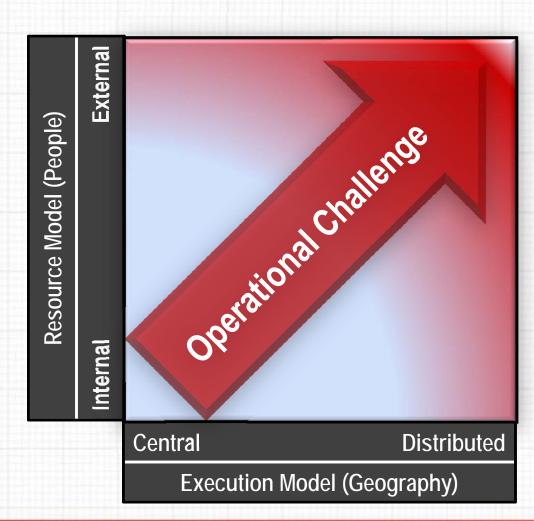*Fred Wettling – Bechtel Fellow*

A WORLD OF EXPERIENCE

Bechtel expertise in every major building sector

- Power generation
- Oil, gas, chemicals, and pipelines
- Airports, ports, bridges, highways, and rail systems
- Government facilities management and environmental cleanup
- Mining and metals
- Industrial facilities
- Communications

Business Changes & Challenges

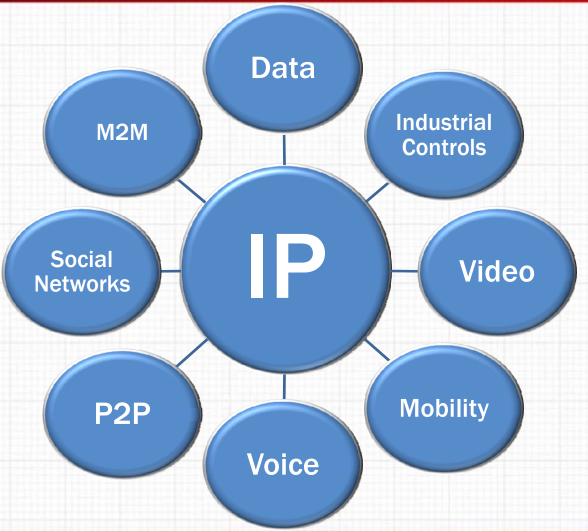**Businesses are evolving to be more complex and distributed**

Resource Model (People)

External

Internal

Operational Challenge

Central

Distributed

Execution Model (Geography)
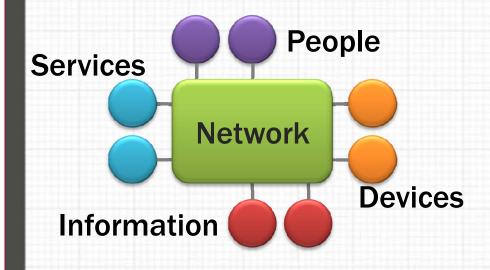
Information is today's currency

IP convergence enables information exchange
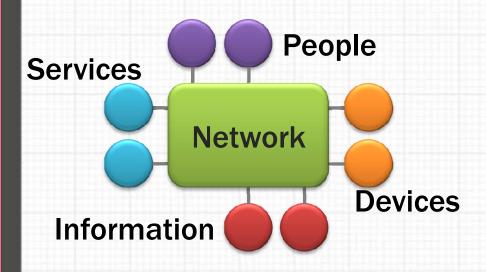
Connecting the Dots...

The Connected Model

End-to-end communication is essential in the connected world of today & the future

The Context for IPv6

The Connected Model

People

Services

Network

Information

Devices

Global Internet Trends

Internet Users

Services

Devices

Information

IPv4 Addresses

Migration Strategy

Assessment of Drivers

- IPv6 is coming

- Broad Competence Needed

- Planned vs. Reactive Transition

- Phased Implementation

High-level Approach

- Start with installed base of products & services...

- Grow to broad deployment

- IPv6 in new IT installations

- Innovate, exploit, expand

**SVP/CIO Approval to Proceed: Oct-04.
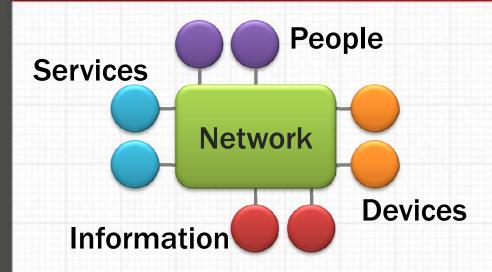Project started Jan-05**
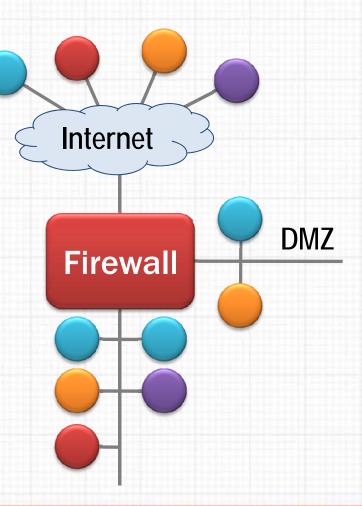
IPv6 Strategy

Develop Sustainable IPv6 Competence

- **Foundation First**

- **Keep IPv4 (for now) – Add IPv6**

- **Broad deployment of expected successes**

- **Ensure nothing breaks (in production)**

- **Maintain / improve security**

- **Watch costs – Use refresh cycles when able**

- **Actively engage key technology partners and industry experts**

Six Connection Paradigms

People

Services

Network
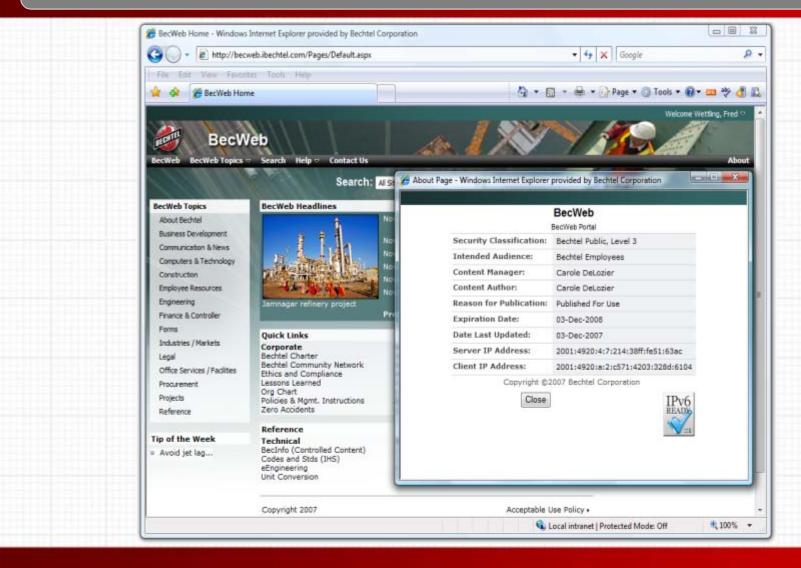
Devices

Information

Internet

Firewall

DMZ

1. Internal to Internal
2. Internal to External
3. Internal to DMZ
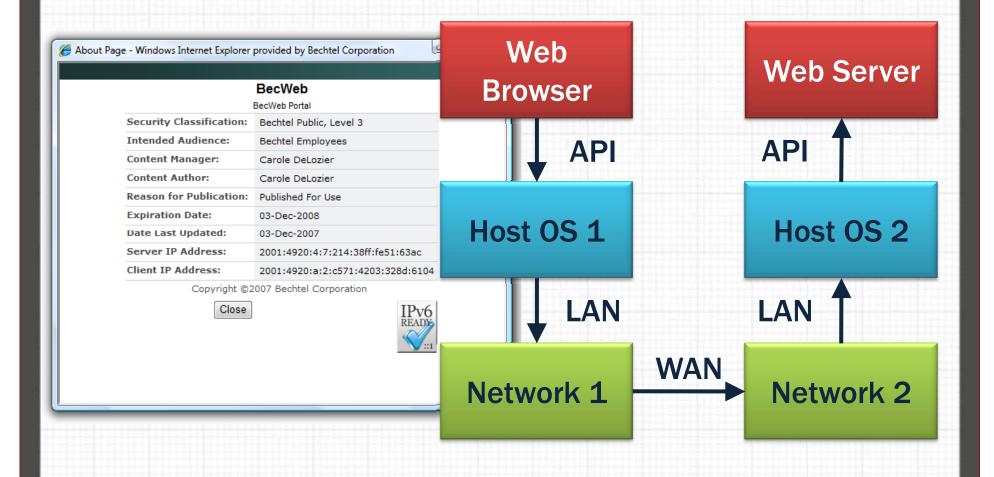4. External to DMZ
5. External to Internal
6. External to External

Bechtel – Running IPv6 TODAY

Web Browser → API → Host OS 1 → LAN → Network 1 → WAN → Network 2 → LAN → Host OS 2 → API → Web Server

BecWeb

BecWeb Portal

Security Classification:	Bechtel Public, Level 3
Intended Audience:	Bechtel Employees
Content Manager:	Carole DeLozier
Content Author:	Carole DeLozier
Reason for Publication:	Published For Use
Expiration Date:	03-Dec-2008
Date Last Updated:	03-Dec-2007
Server IP Address:	2001:4920:4:7:214:38ff:fe51:63ac
Client IP Address:	2001:4920:a:2:c571:4203:328d:6104

Copyright ©2007 Bechtel Corporation
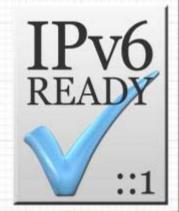
Close

IPv6 READY ::1

Mind the Apps

Guidelines for IPv6 Enabled Applications

- Operating System Configuration

- Development Environment

- Windows Sockets
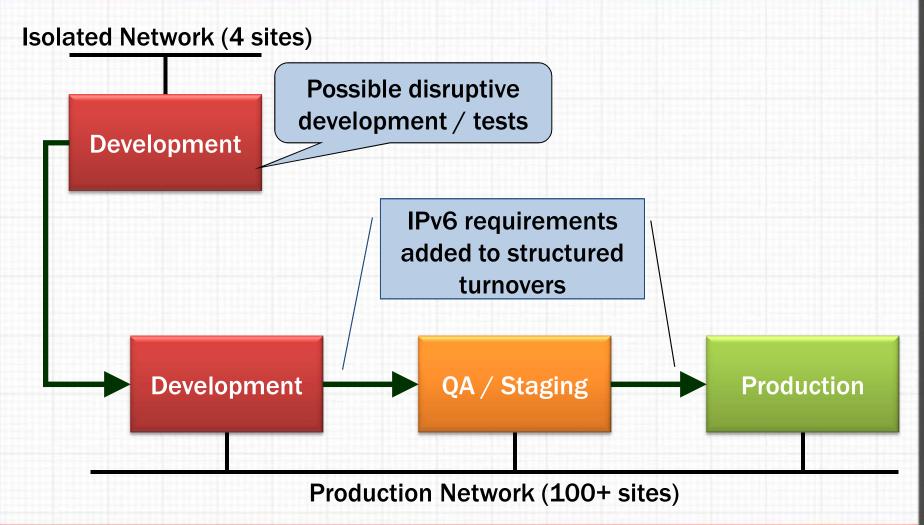
- Checkv4.exe Utility

IPv6 Application Checklist and Certification Steps

- Storage and manipulations of IP addresses

- Technology (NO VB 6.0)

- Use of hardcoded addresses
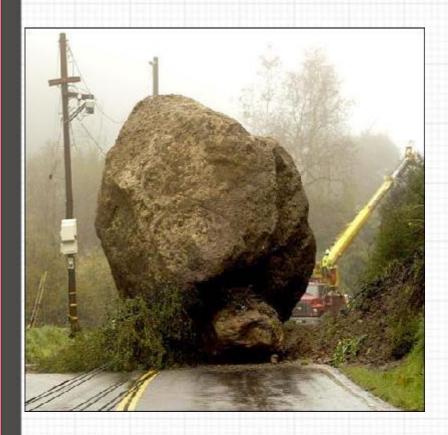
- User interface with addresses
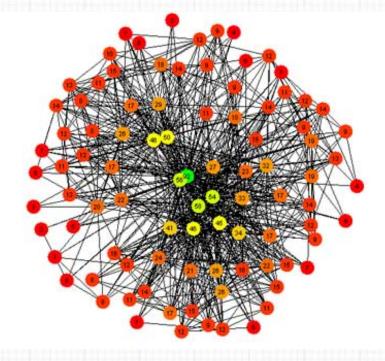
Transition Success: Know & Use Gatekeepers

Isolated Network (4 sites)

Development

Possible disruptive development / tests

IPv6 requirements added to structured turnovers

Development → QA / Staging → Production

Production Network (100+ sites)

Biggest Stumbling Blocks

- **Cultural resistance to change**
- **Product Maturity (improving)**
- **Carriers**
- **Competing budgets**

Future Network Planning

- Dual stack for years
- Move to cloud services
- New P2P services
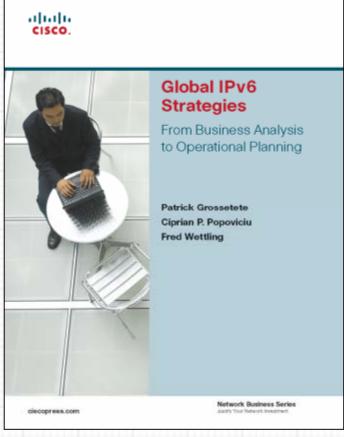- New dimensions in mobility
- Industrial networking

Social Networking map - Grant McCracken

Contact Information

New book published May-2008

Don't miss it!

Global IPv6 Strategies

- The Business and Economic Importance of IP Communications
- IPv4 or IPv6 – Myths and Realities
- The Economy of an IP Evolution
- IPv6 Adoption Strategies
- Analysis of Business Cases for IPv6
- Planning Your IPv6 Migration

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