Cisco IT – IPv6 Integration Strategy

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Agenda

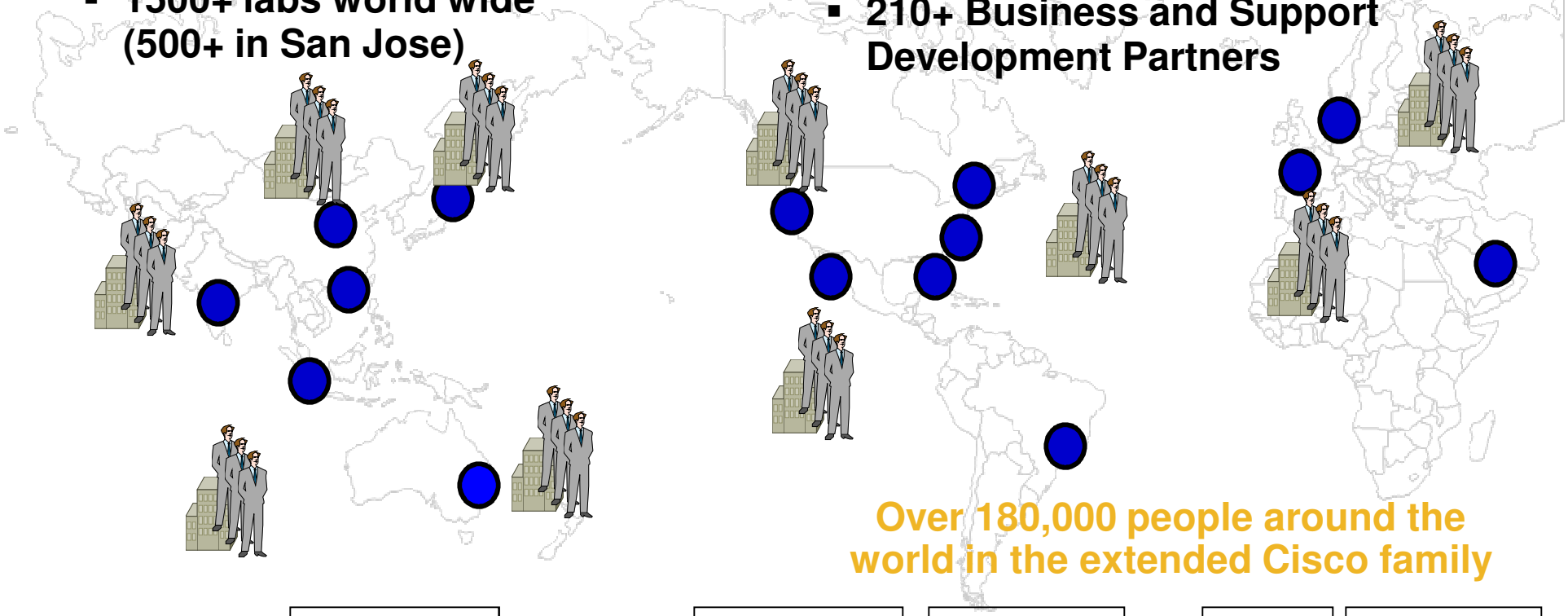
- Introduction to Cisco
- IPv6 Strategy Overview
- IPv6 Address Planning
- IPv6 Deployment Plan (Ubiquitous IPv6 User Access)
- Summary
- Q & A

Information about Cisco

- 300 locations in 90 countries
- 400 buildings
- 51 data centers and server rooms
- 1500+ labs world wide (500+ in San Jose)

- 66,000+ Employees

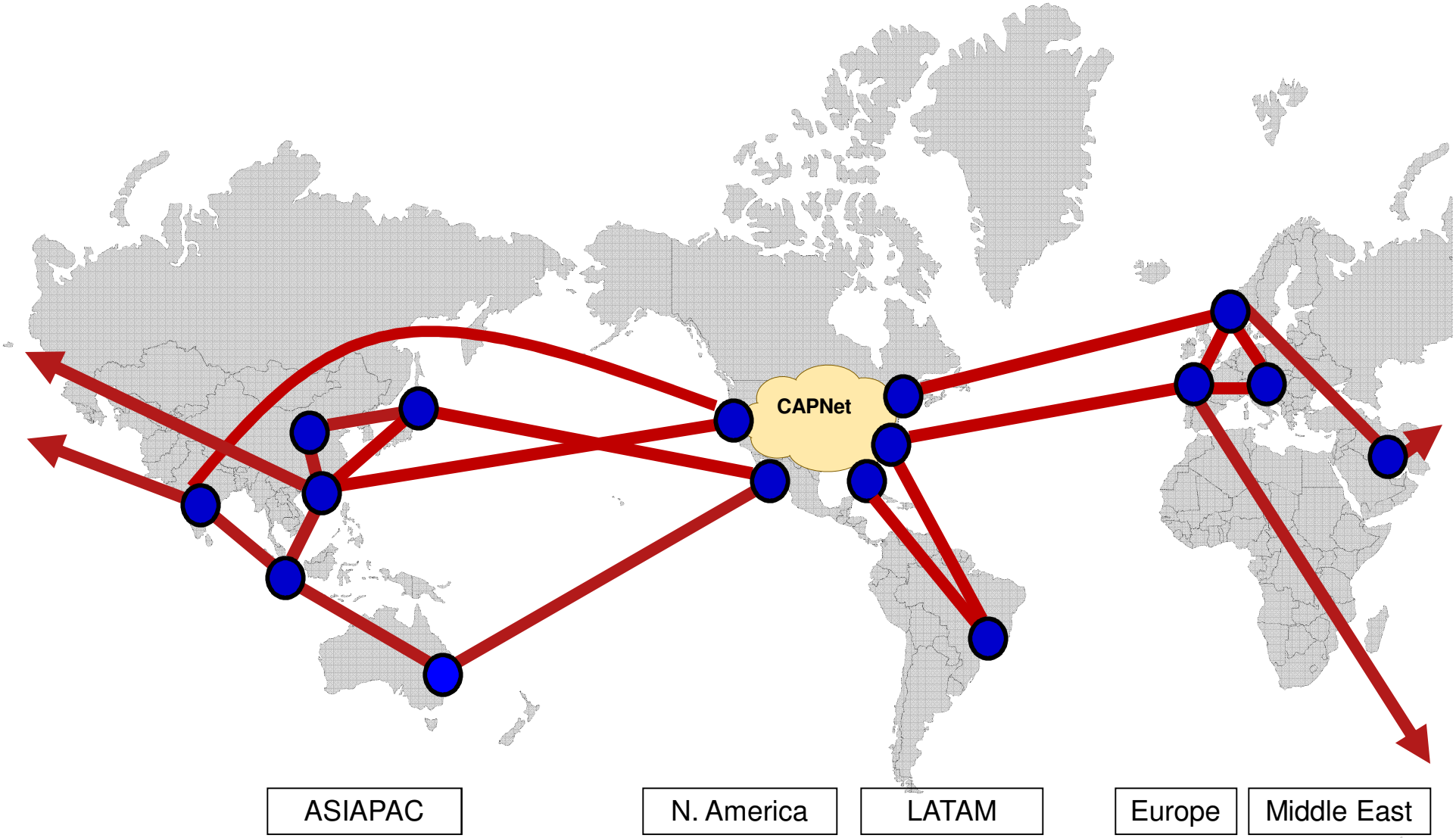
  20,000 Channel Partners
- 110+ Application Service Providers
- 210+ Business and Support Development Partners



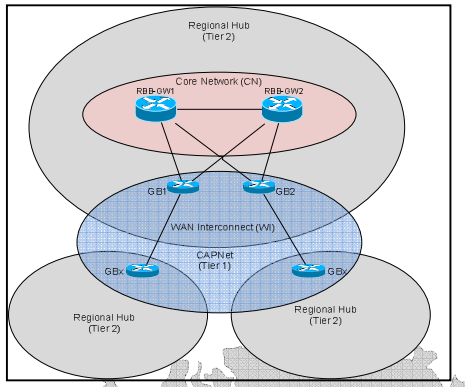
Over 180,000 people around the world in the extended Cisco family

ASIAPAC | N. America | S. America | Europe | Middle East

Cisco Global Tier 1 WAN Backbone



Cisco Global Tier 2 Regional WAN



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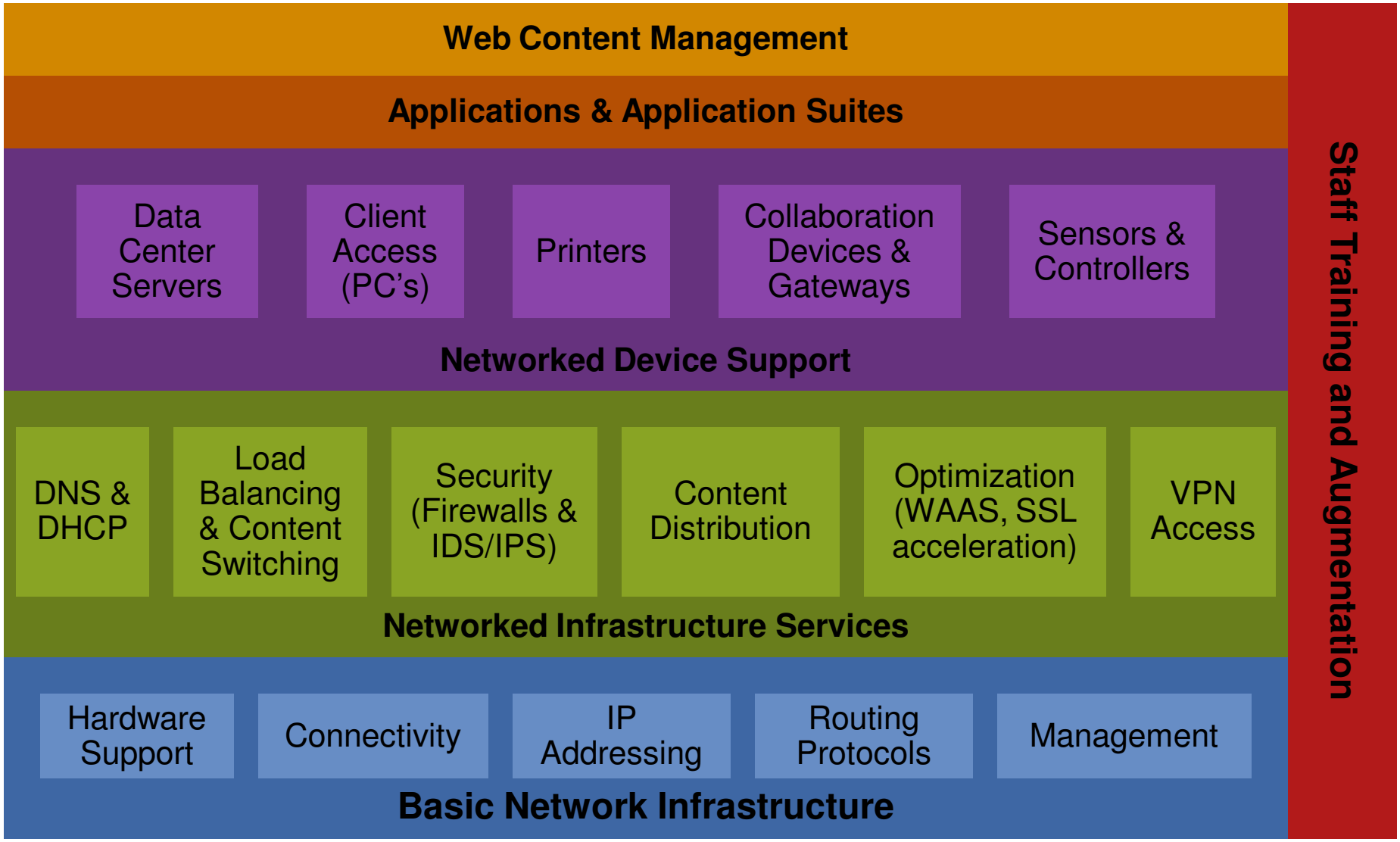
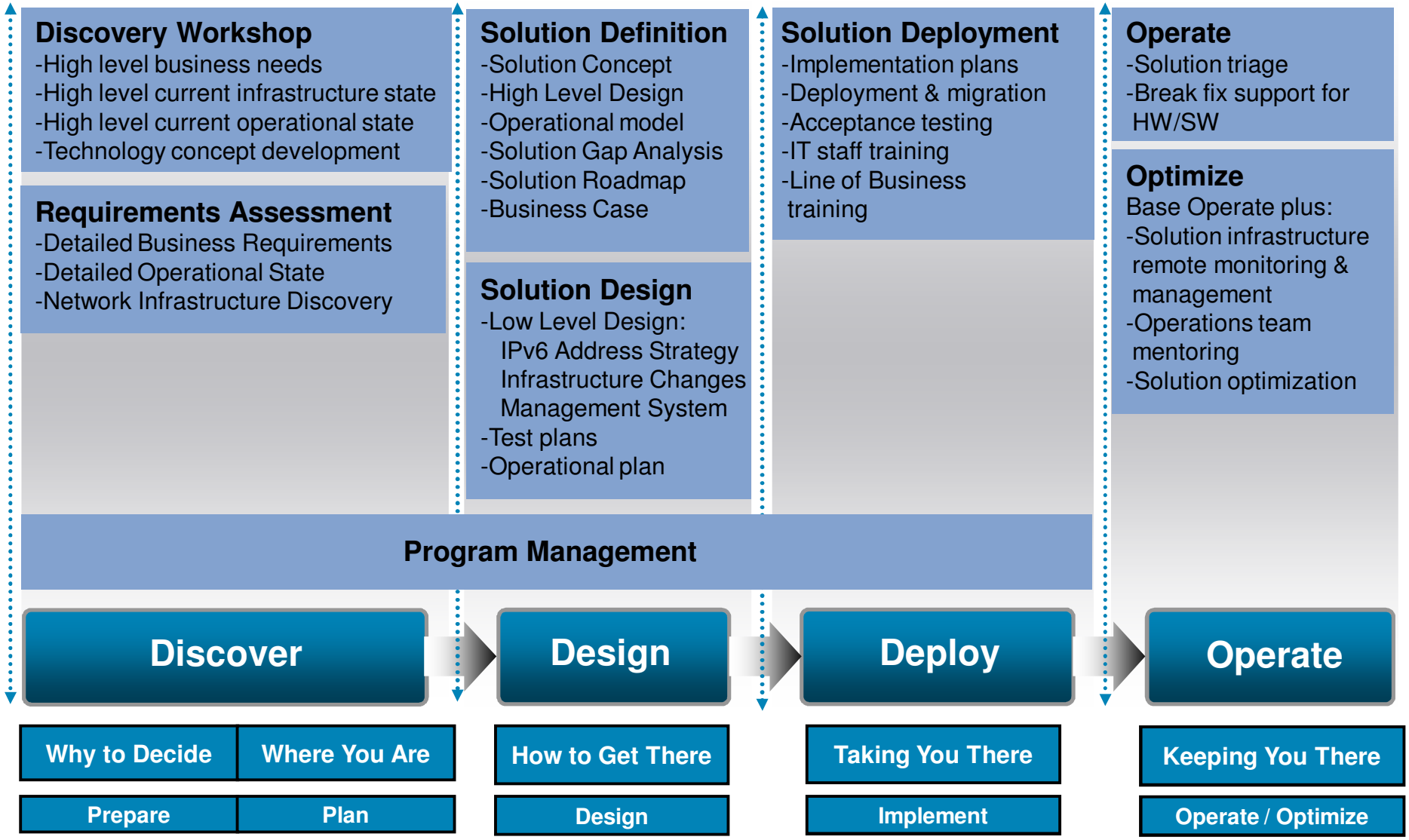
Drivers and Goals

- Business Drivers
  1. IPv6 leadership and mindshare
  2. IPv6 product and solution readiness
- IT Drivers
  1. Corporate Growth (Possible IPv4 Address Depletion in the future)
  2. Enable IPv6 Infrastructure for development and testing
  3. Cisco on Cisco
- Goals
  1. cisco.com IPv6 Internet presence
  2. Enable ubiquitous IPv6-enabled user access in the network
  3. End to end IPv6 (Dual Stack)

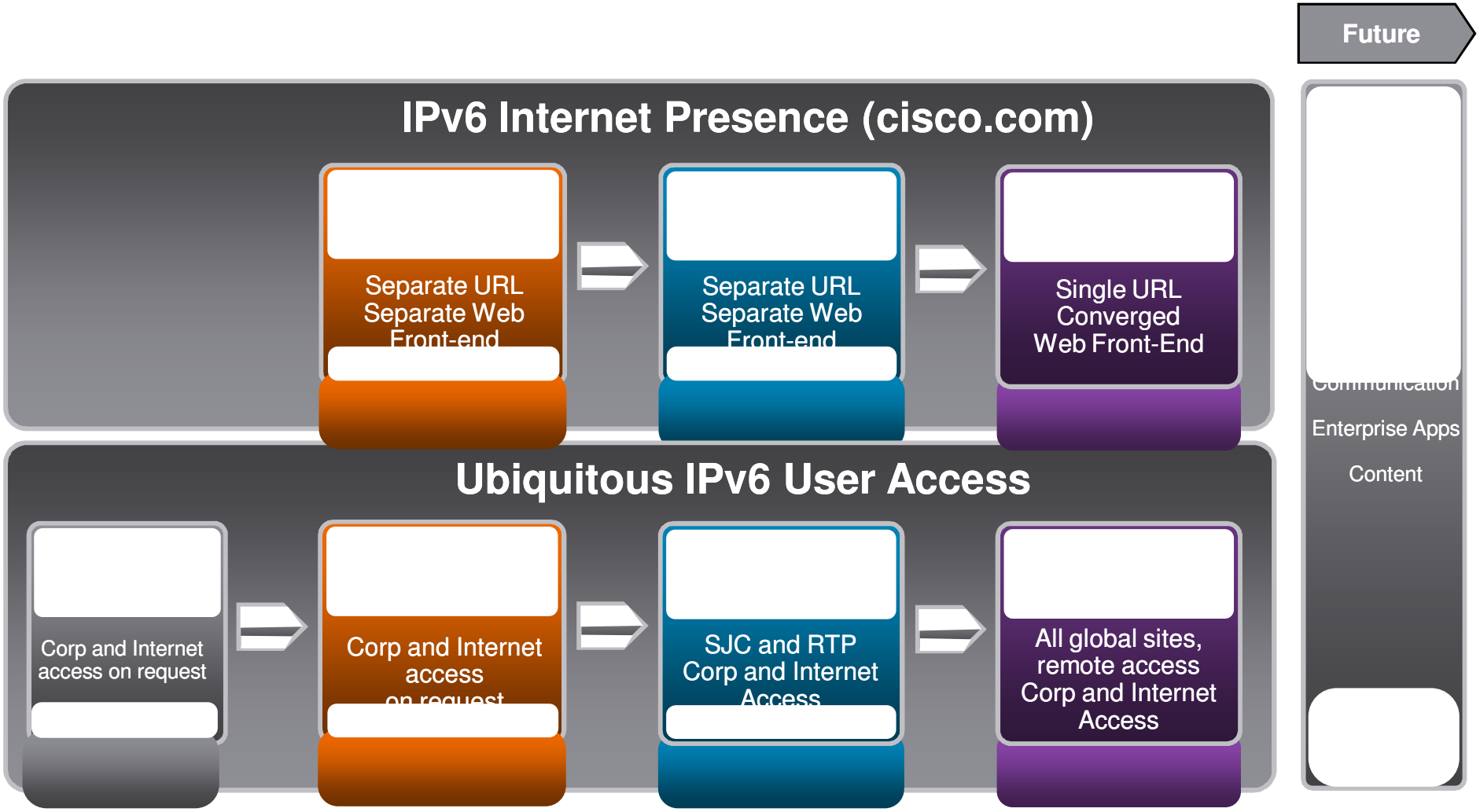
Enterprise IPv6 adoption



IPv6 Solution Services Framework



Cisco IT's IPv6 Strategy



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IPv6 Address Planning Highlights

1. Comply with current IP addressing policy
2. Mirror current IPv4 Regional Allocations
3. Proportional to usage and expected growth
4. Hierarchical Model (Global, Region, Sub-Region and Site)
5. Template addressing at Sub-Regional, Site and PIN (Places in the Network) Levels
6. Holding adequate spares at EACH level of the hierarchy
7. Global Infrastructure and Mobility Allocations

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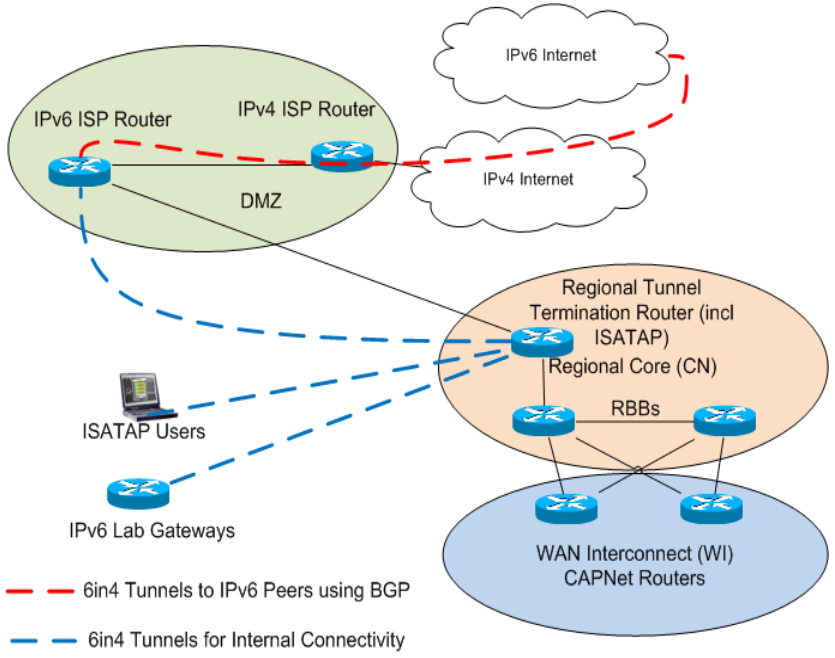
IPv6 Deployment Plan (Ubiquitous IPv6 User Access)

- Pilot Phase (Completed)
  - Single Tunnel Head End with Tunnelled IPv6 Internet Connectivity
  - Offers 6in4 Tunnels for Labs and ISATAP for Desktop users
- Phase 1 – Dual Stacked Core and Tunnelling Infrastructure
  - Dual Stacked CAPNet and Partial Core
  - Five Regional Tunnels Head Ends
  - Native IPv6 in SJ with Dual stacked DMZ
  - Native IPv6 in RTP with Dual Stacked DMZ
- Phase 2 – Desktop (Wired and Wireless) and DC Pilot
  - Dual Stack Pilot Desktop Wired and Wireless
  - Isolated Dual Stacked DC Pod (IPv6 DC Island)
- Phase 3 – DC, DMZ, Remote office (CVO, ECT), OOB, Lab, Remaining Core, MPLS VPNs, Multicast, QoS, Extranet (TBD)

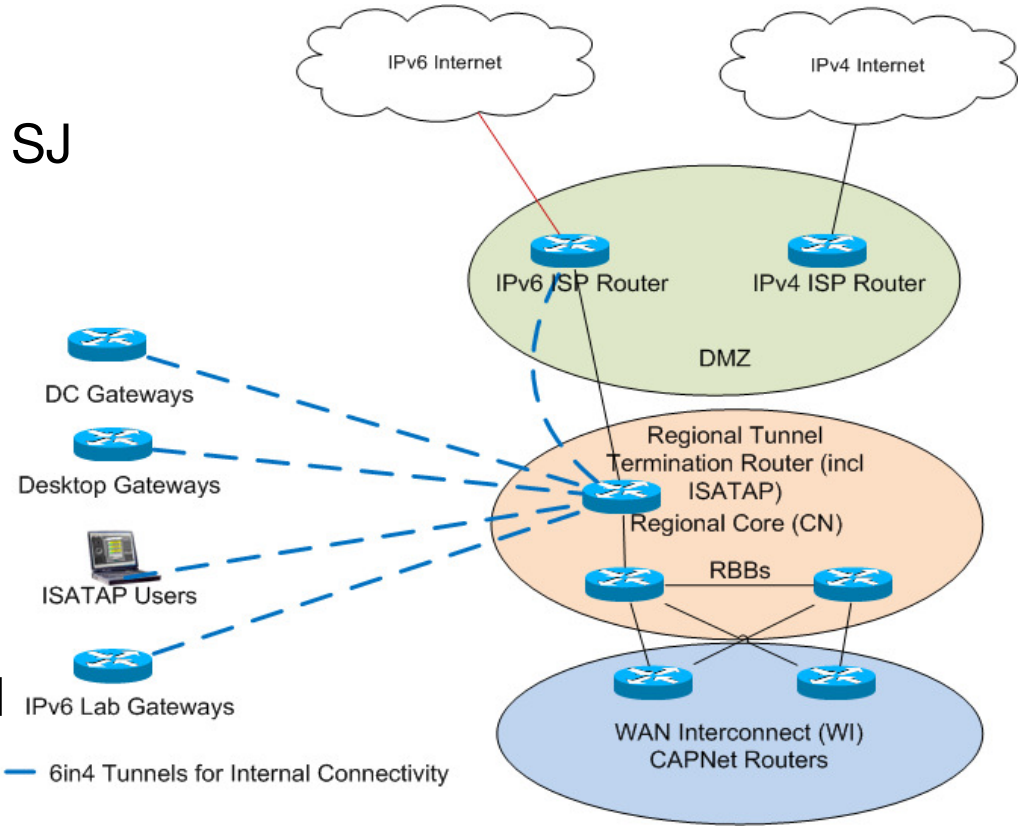
Cisco IT IPv6 Tunnelling Infrastructure – Pilot Phase

- Tunnelled Internet connectivity to IPv6 Internet only through SJ
- No regional Tunnel Head Ends
- High latency between intra-regional labs / users due to back hauling
- Single point of failure
- No IPv6 DMZ to host content on IPv6 internet



Cisco IT IPv6 Tunnelling Infrastructure – Phase 1

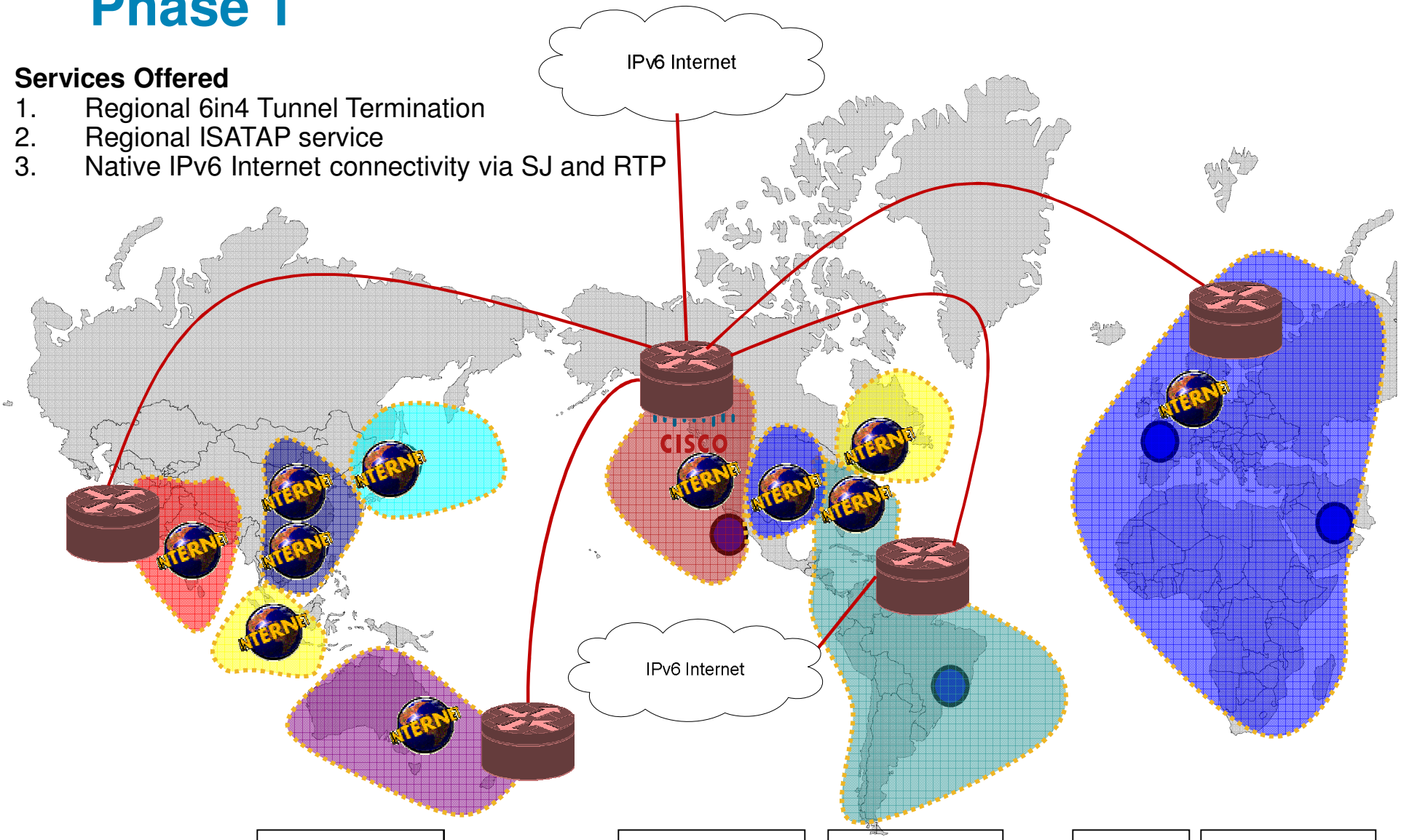
- Native IPv6 Internet connectivity SJ and RTP
- Regional Tunnel Head Ends
- Reduced intra-region latency between labs / users
- Tunnel endpoint and ISATAP redundancy
- Dual stacked DMZ within SJ and RTP to host native IPv6 content



Cisco IT - Regional IPv6 Tunnel Head Ends – Phase 1

Services Offered

1. Regional 6in4 Tunnel Termination
2. Regional ISATAP service
3. Native IPv6 Internet connectivity via SJ and RTP



IPv6 AlphaNet Project Goals

- Pilot to provide Native IPv6 access to two engineering building on the San Jose Campus.
- Pilot extended into Engineering Data Center in San Jose for end to end IPv6 access to certain production applications
- The goals of the architecture are:
  - Support the targeted services and applications with minimal productivity risks and investment
  - Leverage multiple, representative Cisco products
  - Trial the long term network designs for the production infrastructure
- The IPv6 Pilot needs to deliver reliable, high performance services very similar to the production services to the point where the user cannot distinguish between the two

Value Proposition of GGSG IPv6 Enablement Project

Other Cisco IPv6 implementations have focused on WAN, Data Center, or Desktop implementations using Alpha or parallel networks

- **Demonstrate dual stack migration of production network** (GGSG desktop networks and GGSG IT production DC)
- **Increase GGSG IT and AS NCEs' IPv6 life cycle deployment experience**
- **Enable security controls, monitoring, and inspection,** particularly for GGSG IT DC (e.g., end-to-end secure implementation of firewalls, IDS/IPS, Netflow, VPN)
- **Provide feedback to BU(s) for Cisco products** – particularly, security
- **Demonstrate Cisco thought leadership for Public Sector/enterprise security requirements**
- **Provide comprehensive architecture and infrastructure strategy for future migration** of applications and client services to IPv6 (VoIP, collaboration tools)

Summary

- Cisco IT IPv6 integration timeline is in-line w/ what we've seen from our technology leading customers.
- Most are taking a phased approach targeting full scale deployment in the 2012+ timeframe
- IPv6 initially seen as a low priority business case. More pressing projects
  - Low funding and volunteer efforts
  - Landscape is changing receiving more executive level visibility
- Schedule is subject to the same resource issues
  - People
  - Money
  - Feature and Application support
  - Security
  - Network management, visibility, understanding impact
- Start now, Planning, training, assessment

Q and A