Enterprise Case Study:
Adopting an SD-WAN Enabled Network
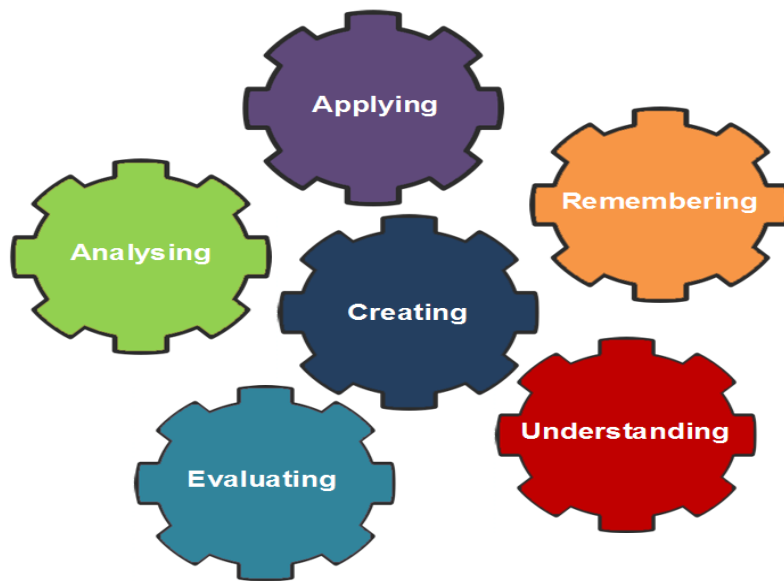
Jeremiah Ginn
Network Manager

Case Study Overview
Adopting an SD-WAN Enabled Network

Our case study is based on a manufacturing company with sites in the US, Canada, and Mexico. Initially the company had a WAN made of mostly MPLS circuits and some static IPSEC VPN tunnels.

- 160 sites
- 17,000 employees
- 5,000 knowledge workers
- US, Canada, Mexico
- Cisco
- Talari

Phase I
Solution for Key Sites

- Phase I – The business unit needed additional WAN reliability at key locations.
- Key Solution - Talari dual T-3000 head end and T-510 for remote sites across 19 locations
- Technology – SD WAN using SSL "conduits" for dynamic path creation and routing
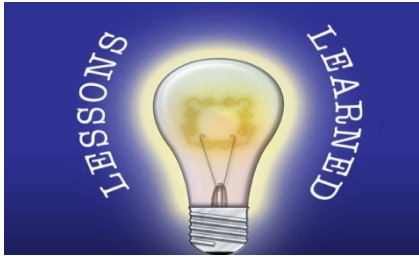
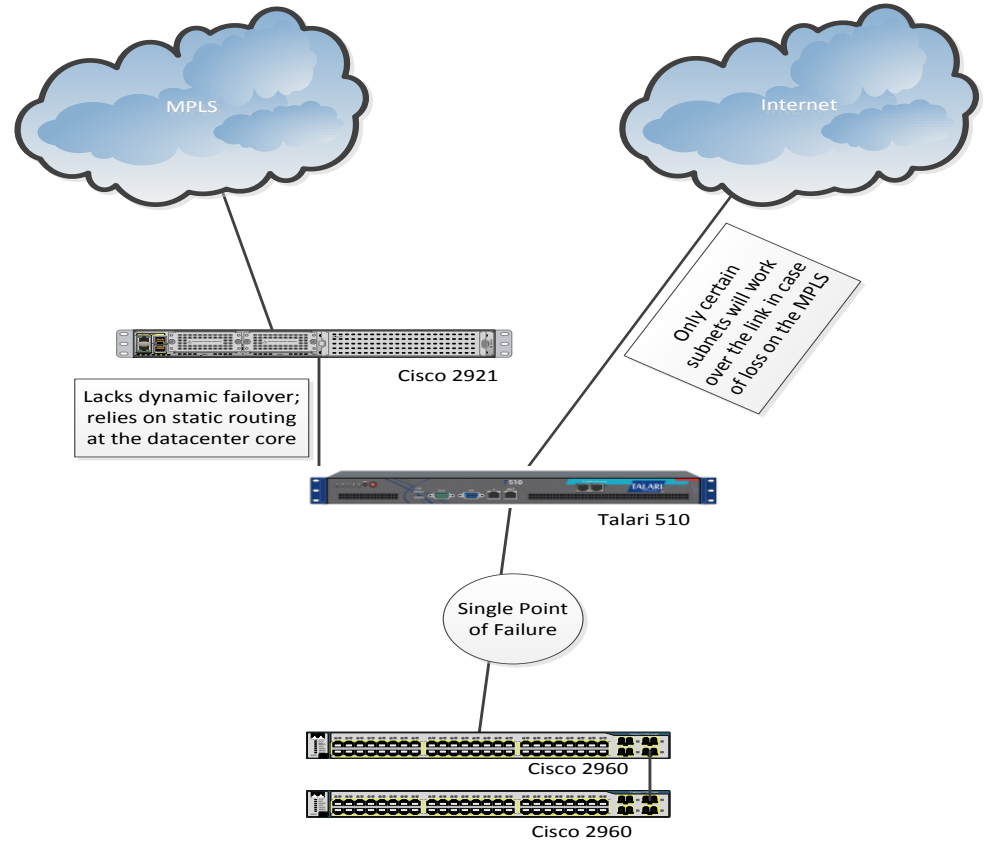| Business Needs	How Talari Met the Need
Reliability	Inline fail to wire behind WAN router
Bandwidth	Bandwidth Aggregation
Simple	Installed in 15 minutes
Cost Effective	Initial cost apx. $3,500 per site
Easy Operations	Average 1 support ticket per year
Lifecycle	In 7 years only 1 hardware failure

http://www.talari.com/

Phase I

Lessons Learned

1. Trust the solution

2. Do the research

3. Keep it simple

4. Pilot for success

5. Training pays

MPLS

Internet

Only certain subnets will work over the link in case of loss on the MPLS

Cisco 2921

Lacks dynamic failover; relies on static routing at the datacenter core

Talari 510

Single Point of Failure

Cisco 2960

Cisco 2960

Phase II
Solution for All Sites

- Phase II – Hardware refresh (most WAN devices 7-9 years old), several teams were competing for budget (IOT, Voice, WAN, Security, Wireless), and the need for point to multipoint to work. All sites need more reliability not just key sites
- Key Solution – Cisco ASR 1001-X head end, and ISR 4331 for remote sites across 160 locations
- Technology – SD WAN using Cisco iWAN

Business Needs	How Cisco Met the Need
• Reliability	Able to use dual routers and multiple circuits per router
• Bandwidth	Bandwidth Aggregation
• Simple	Not really, requires senior engineer
• Cost Effective	Initial cost apx. $8,000 a site, far less than multiple devices
• Easy Operations	To Be Determined
• Lifecycle	Expected to last 7-10 years
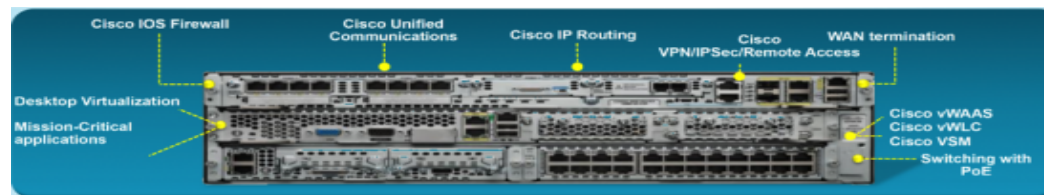
Cisco's solution allows for multiple functions in the same device

https://blogs.cisco.com/perspectives/cisco-intelligent-wan-iwan

# Cisco Intelligent WAN Solution Components
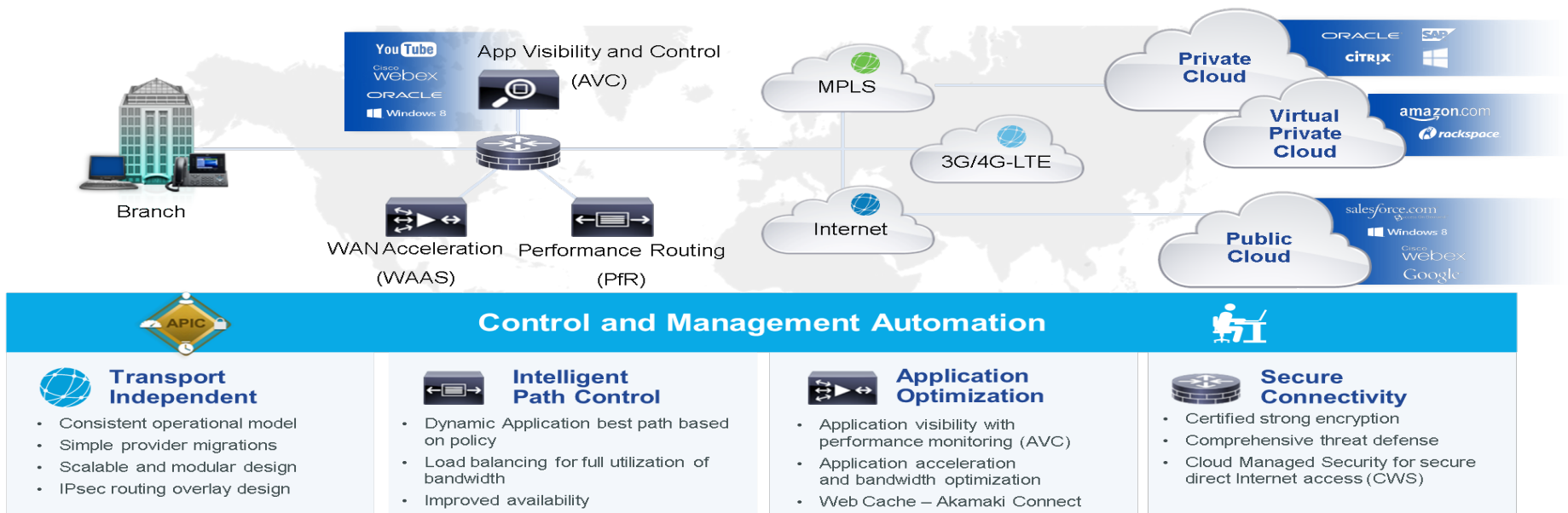
Network – Site Networking Models – Service Groups
### Cost effective implementations

- **Site Type A – Full Diversity - No single point of failure to Site – Diverse circuits, redundant hardware**
- **Site Type B – Partial Diversity – Diverse circuits, single hardware device**
- **Site Type C – Not Diverse – This type is for small sites such as warehouses and temporary sites**
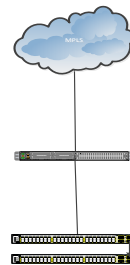

Dual Internet Remote Site Network Topology
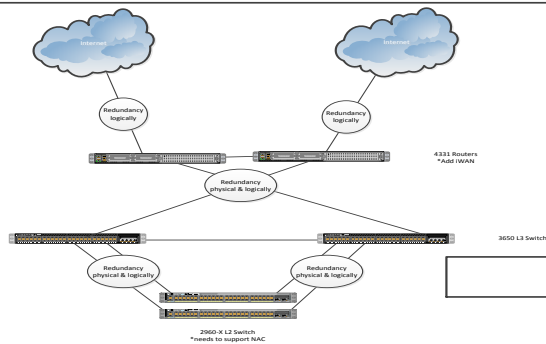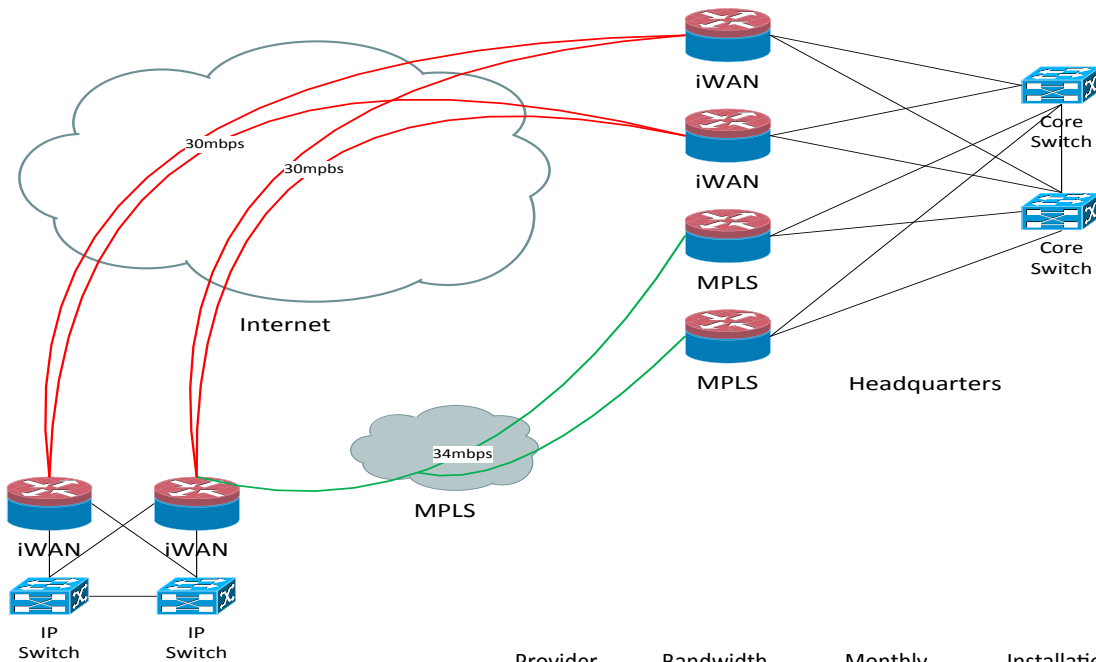
Single Router MPLS-Internet Remote Site Network Topology
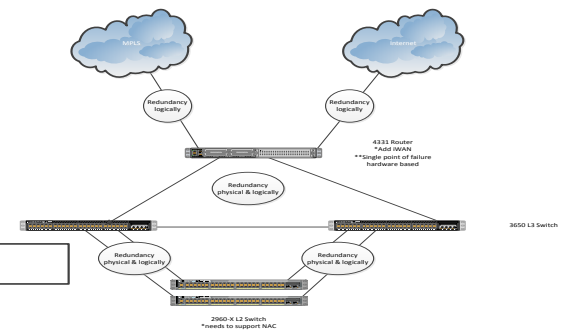
NonRedundant Remote Site Network Topology

iWAN Pilot – Site 1

Benefits:
- Network circuit diversity and redundancy
- Hardware redundancy
- Supports up to 100mbps encrypted
- Cost savings over MPLS (after pilot)
- Local Internet Path
- Site to site video (iWAN sites)
- Shop Floor Isolated Network
- Upgrade to Voice Gateway
- Replace the old router, end of support 10/31/16
- Replace the Talari which supports only 40mbps

	Provider	Bandwidth	Monthly	Installation
Current	Provider C	34mbps	$11,917.00	n/a
Current	Provider A	6mbps	$855.00	n/a
New	Provider A	30mbps	$1,900.52	$0.00
New	Provider B	30mbps	$1,397.79	$0.00

Current Monthly	$12,772
New Monthly	$6,961
Projected Savings	**$5,811**
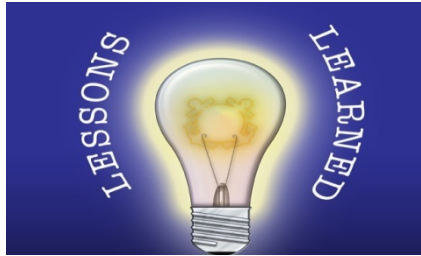
Case Study

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