TOMORROW
starts here.

Optimising SP Networks with WAN Automation Engine

BRKSPM-2003

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#clmel

Agenda

New Era in
Telecommunications

Cloud Monetisation,
Connectivity Optimisation
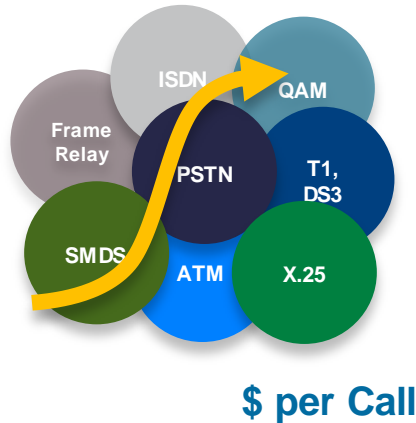
Cisco WAN Automation Engine

Examples
  Cloud Backup
  Sweating High Cost Assets

Summary
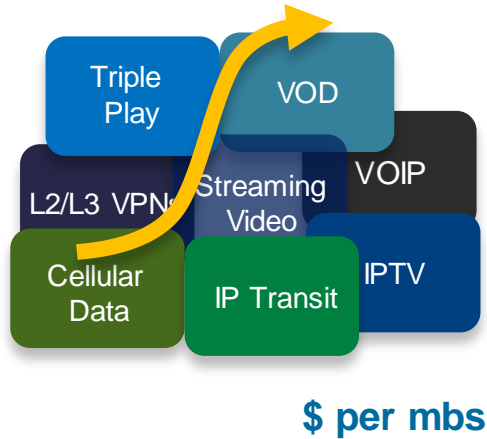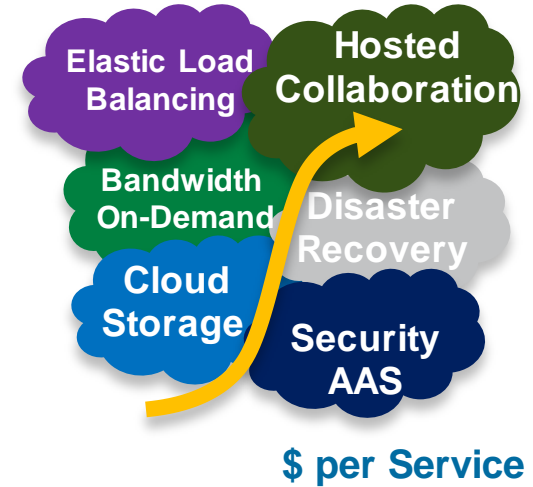
New Era in "Telecommunications" Services

Voice Centric

ISDN
QAM
Frame Relay
PSTN
T1, DS3
SMDS
ATM
X.25

$ per Call

Data Centric

Triple Play
VOD
L2/L3 VPN
Streaming Video
VOIP
Cellular Data
IP Transit
IPTV

$ per mbs

Application Centric

Elastic Load Balancing
Hosted Collaboration
Bandwidth On-Demand
Disaster Recovery
Cloud Storage
Security AAS

$ per Service

Four Waves of Business

OPERATOR'S DILEMMA (AND OPPORTUNITY): THE 4TH WAVE

Revenue Growth Curves

Voice

Messaging

Access

VAS/OTT

Net Revenue

Subscriber Penetration

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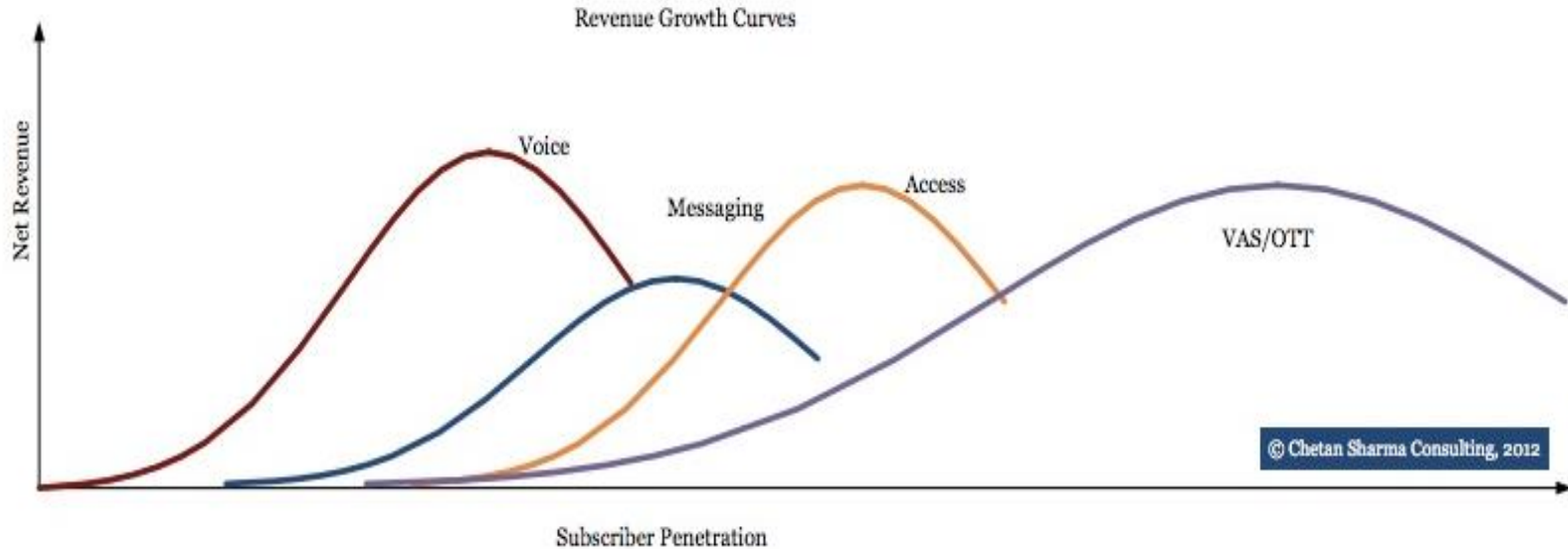
Challenges and Opportunities

Margin Per GB Per Year
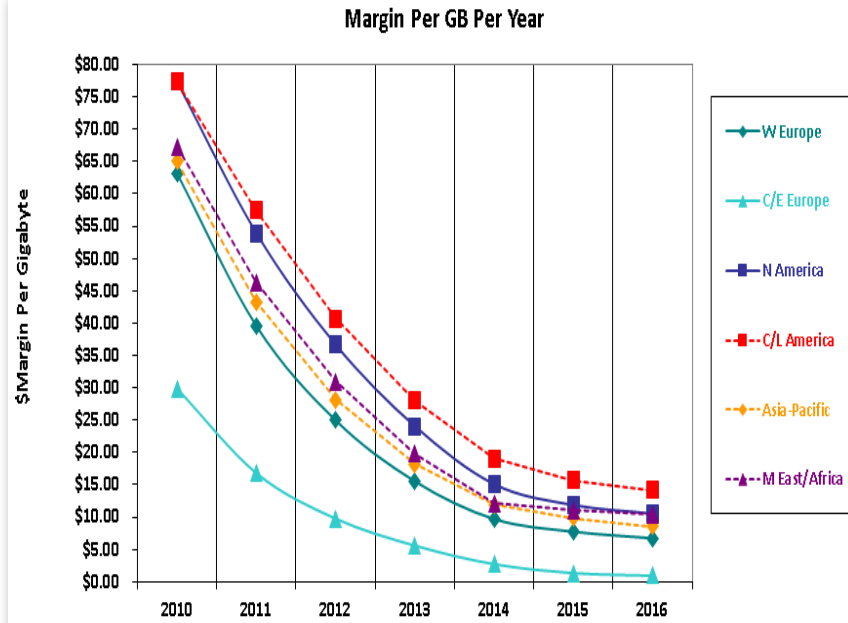
Profitability of Connectivity Services

Software as a Service
Applications, Collaboration, etc.
WebEx, Salesforce.com, OnDemand

SaaS

Platform as a Service
Middleware, Directories, etc.
Google Apps, WebEx Connect

PaaS

Infrastructure as a Service
Compute, Storage, Networking
Amazon EC2, Savvis, Terremark

IaaS

Data Centre as a Service
Data centre facilities, power, cooling

DCaaS
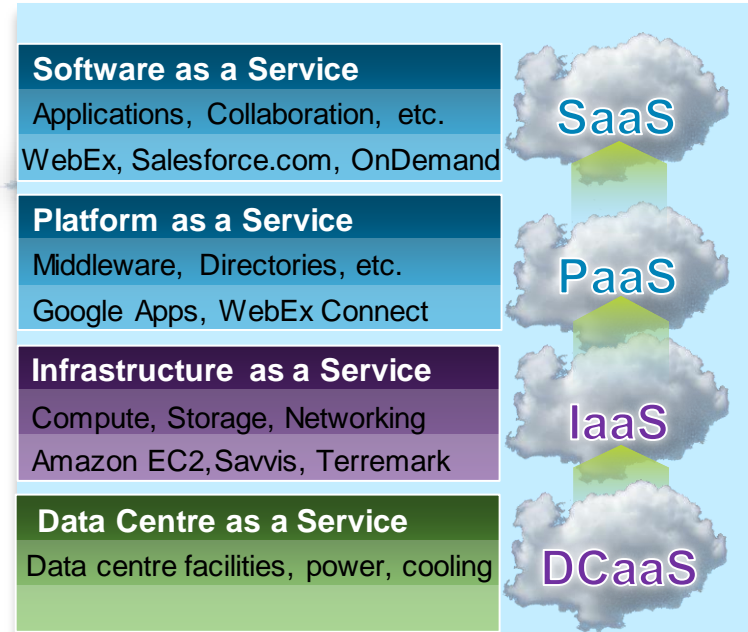
Cloud Services Creation

Customer Asks and API

Monetisation

- Cloud Backup
- VM placement
- Bandwidth on Demand
- Security as a Service
- Disaster Recovery
- …

Optimisation

- Sweating Expensive Assets
- Customer Profitability
- Maintenance Automation
- Design, Deploy & Maintain Disjoint Paths (Mobile Backhaul)
- …

When | Where | Who | How Much | How Long

Infrastructure & Service Visibility | Path Intelligence & Control
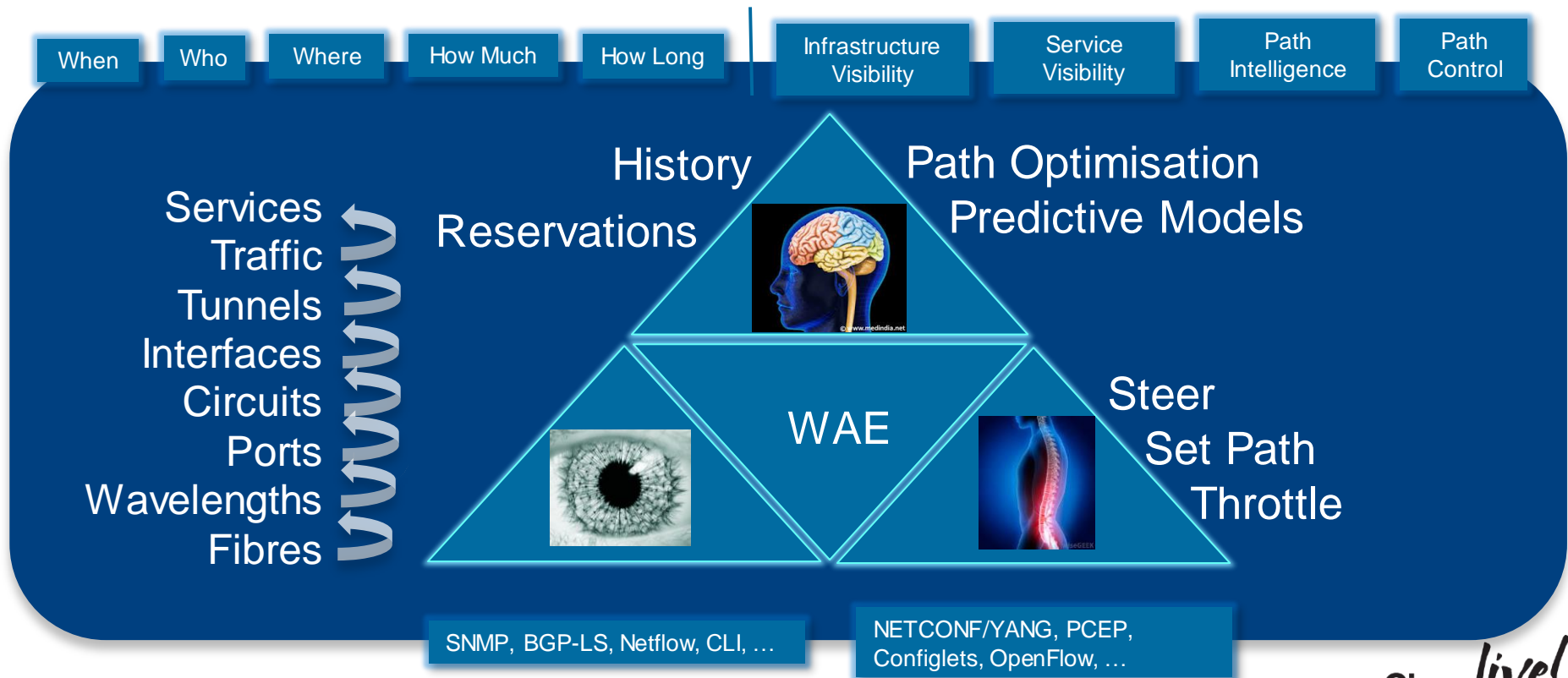
WAN Automation Engine (WAE)

Monetisation Application to API Mapping

	When	Where	How Much	How Long	Who
Cloud Storage	X		X	X	
VM (or Cache) Placement		X	X		
Bandwidth on Demand	X	X	X	X	
Security AAS		X			X
Disaster Recovery		X	X		

    Cisco Public

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Optimisation Application to API Mapping

	Infrastructure Visibility	Services Visibility	Path Intelligence	Path Control
Sweating Expensive Assets	X		X	X
Customer Profitability	X	X		
Maintenance Automation	X		X	X
Design, Deploy & Maintain Disjoint Paths for Mobile Backhaul	X		X	X

WAN Automation Engine
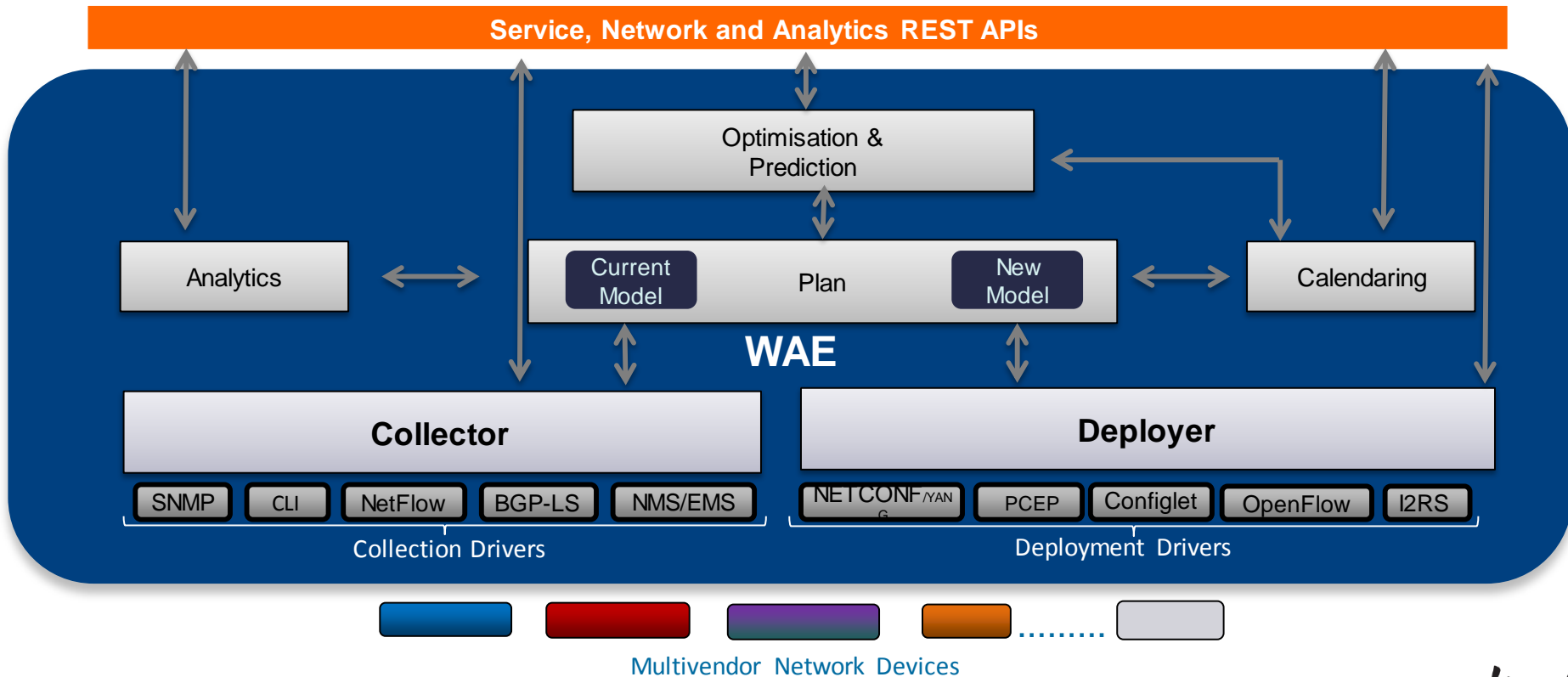
When	Who	Where	How Much	How Long

Infrastructure Visibility	Service Visibility	Path Intelligence	Path Control

History

Reservations

Path Optimisation

Predictive Models

Services
Traffic
Tunnels
Interfaces
Circuits
Ports
Wavelengths
Fibres

WAE

Steer

Set Path

Throttle

SNMP, BGP-LS, Netflow, CLI, …

NETCONF/YANG, PCEP, Configlets, OpenFlow, …

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WAE Components

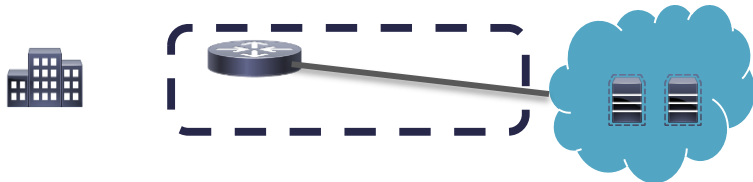# Monetisation Example:
Cloud Backup

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The Network Advantage

- Incremental network costs can be negligible if traffic demand can be shifted in time (or place)

- Create compelling value-added services by close interaction with the network

Cisco Public
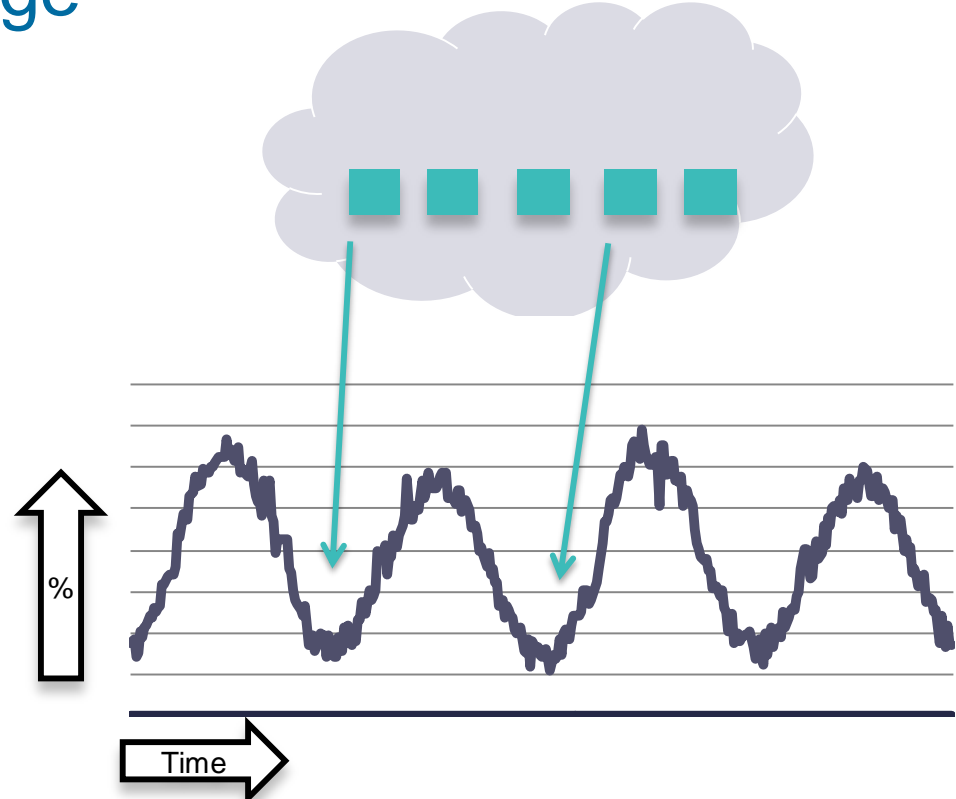
Scheduled Cloud Storage Transfer

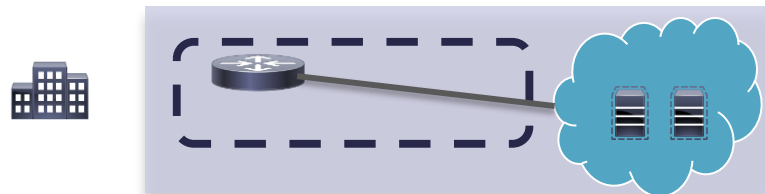## Segregated Offering

Two Contracts:

Connectivity	$2100
Data Transfer and Storage	$720 + $179

Maintenance:

Troubleshoot two technologies
Cost effective but substandard SLA for BB
Expensive Commercial Grade connectivity
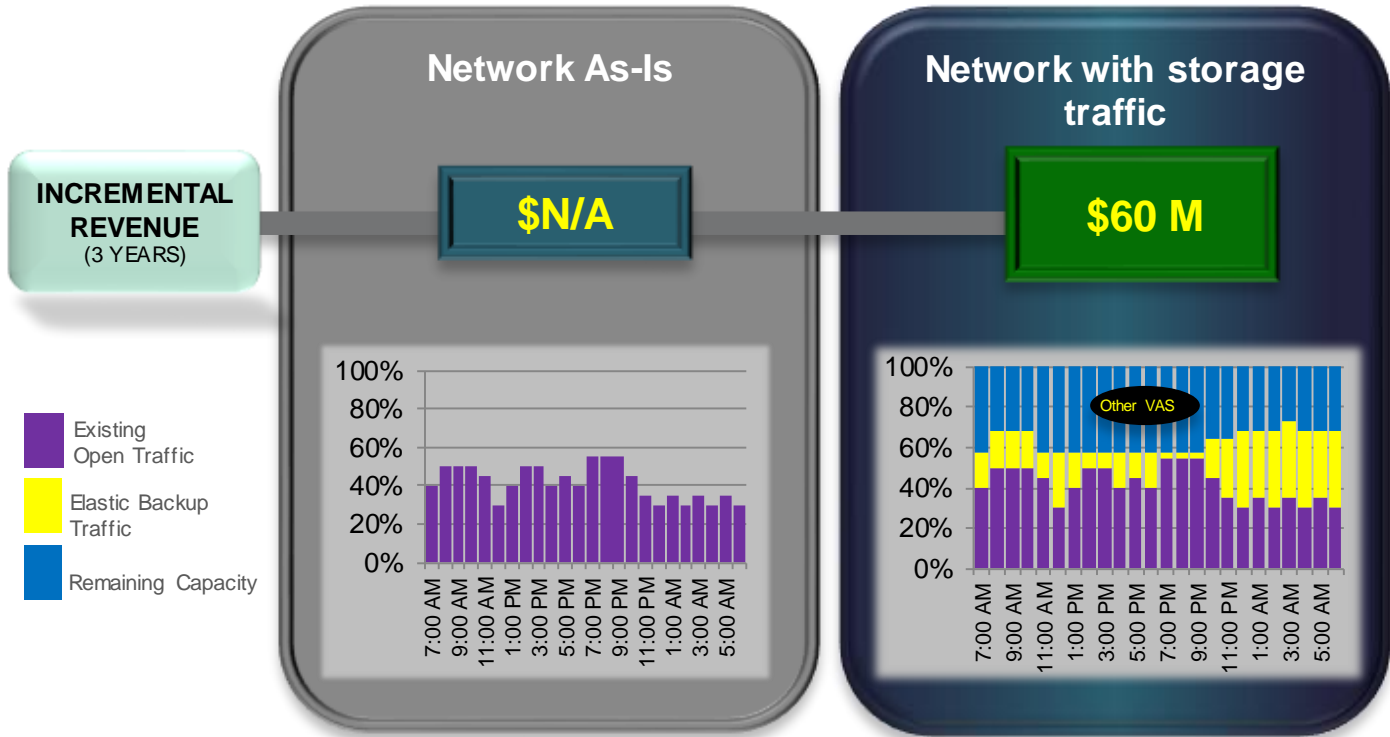
Integrated Offering

Single Contract:

Connectivity + Storage	$2400

Maintenance:

Commercial Grade Connectivity @ BB prices

 Cisco Public

Cloud Storage with Bandwidth Calendaring

Enterprise Monthly Storage Size	6 TB
Selected Transfer Speed	250 Mbps
SP Target Customer Size	15000
Service Adoption Rate - Year 1	6%
Service Adoption Rate - Year 3	13%

INCREMENTAL REVENUE (3 YEARS)

Network As-Is — $N/A

Network with storage traffic — $60 M

Legend:
- Existing Open Traffic
- Elastic Backup Traffic
- Remaining Capacity

Other VAS

Detailed Analysis Available at Booth

Value Prop
to Enterprise/SMB

Storage and Bandwidth Calendaring beats other market options

1. **Lower Monthly Recurring Charges**
   - More than 20% savings versus segregated offering
2. **Higher Connectivity SLAs**
   - Five 9s vs less than Three 9s on Broadband Internet
   - Potential annual downtime financial loss as high as $494,037

Solution Comparison
(6 TB monthly Cloud Storage at 250 Mbps)

Service Elements	Segregated Offering	Integrated offering with BW Calendaring
CONNECTIVITY	$2100	$1200*
DATA TRANSFER + Storage	$899	$1200
Monthly Recurring Cost (MRC)	**$2999**	**$2400** *Could be lower based on data size

Solution Advantage $598
20%

*Sources: Cisco BTA, Cisco VNI, AWS website, AT&T Website, EMC, Primary Research/Customer Interviews & Engagements

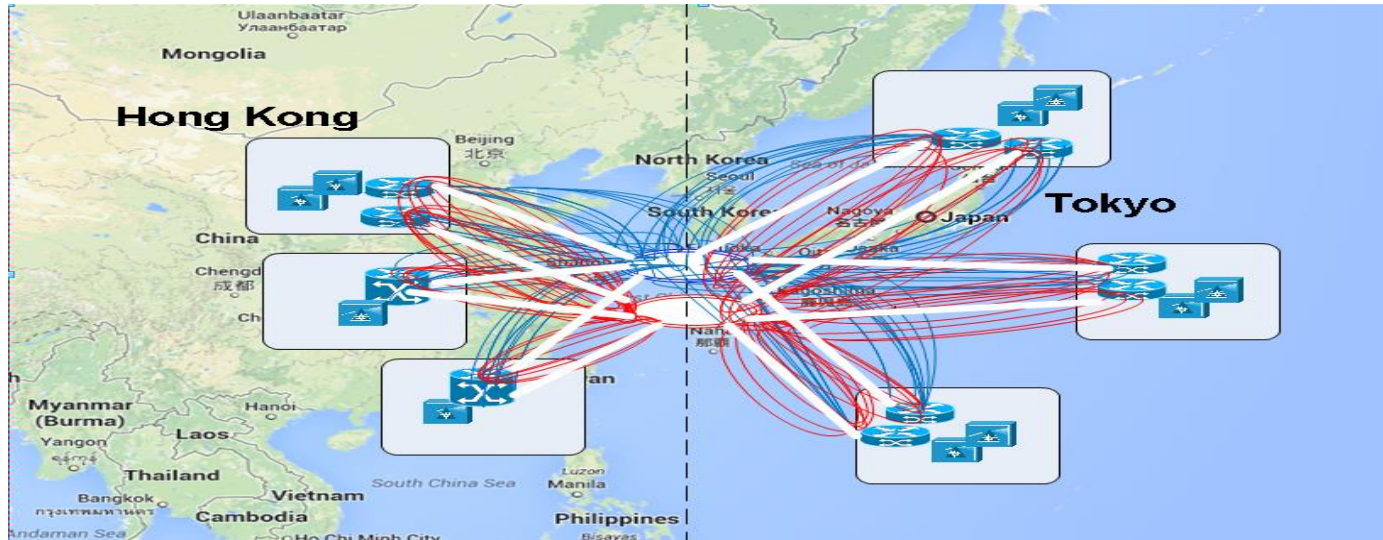# Optimisation Example:
Sweating High Cost Assets

High Cost Assets

www.telegeography.com

 Cisco Public

Challenges With Long Distance Links

Multiple PoPs, multiple routers, many links, many many paths
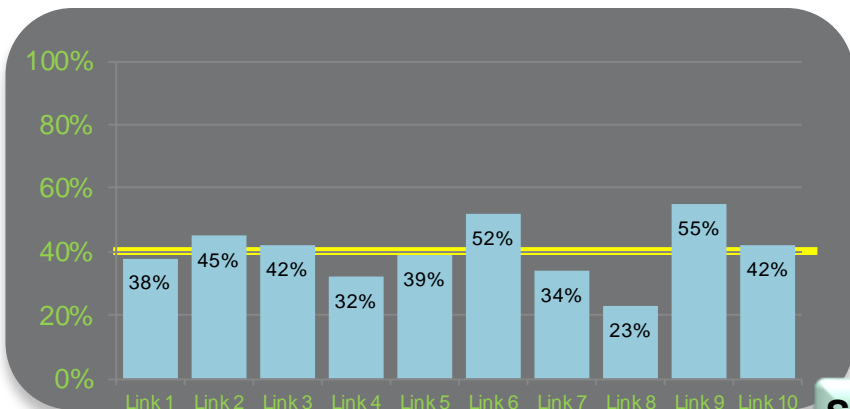- Actual balance far from ideal
- Fibre or node failures cause havoc

Optimisation Opportunity

- **Present Mode of Operation**
  - Upgrade at 40% peak per
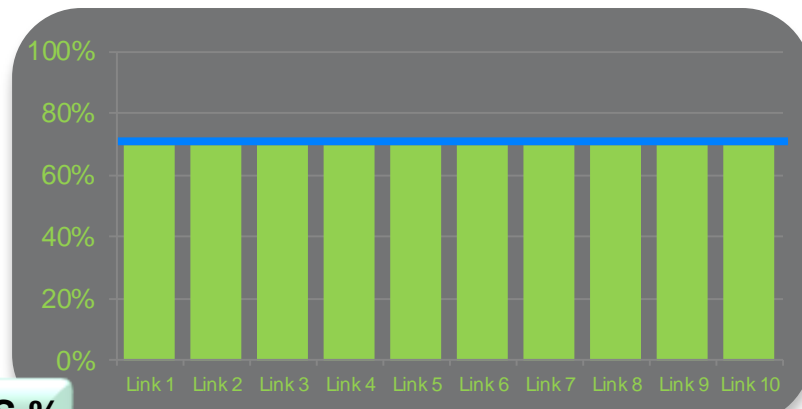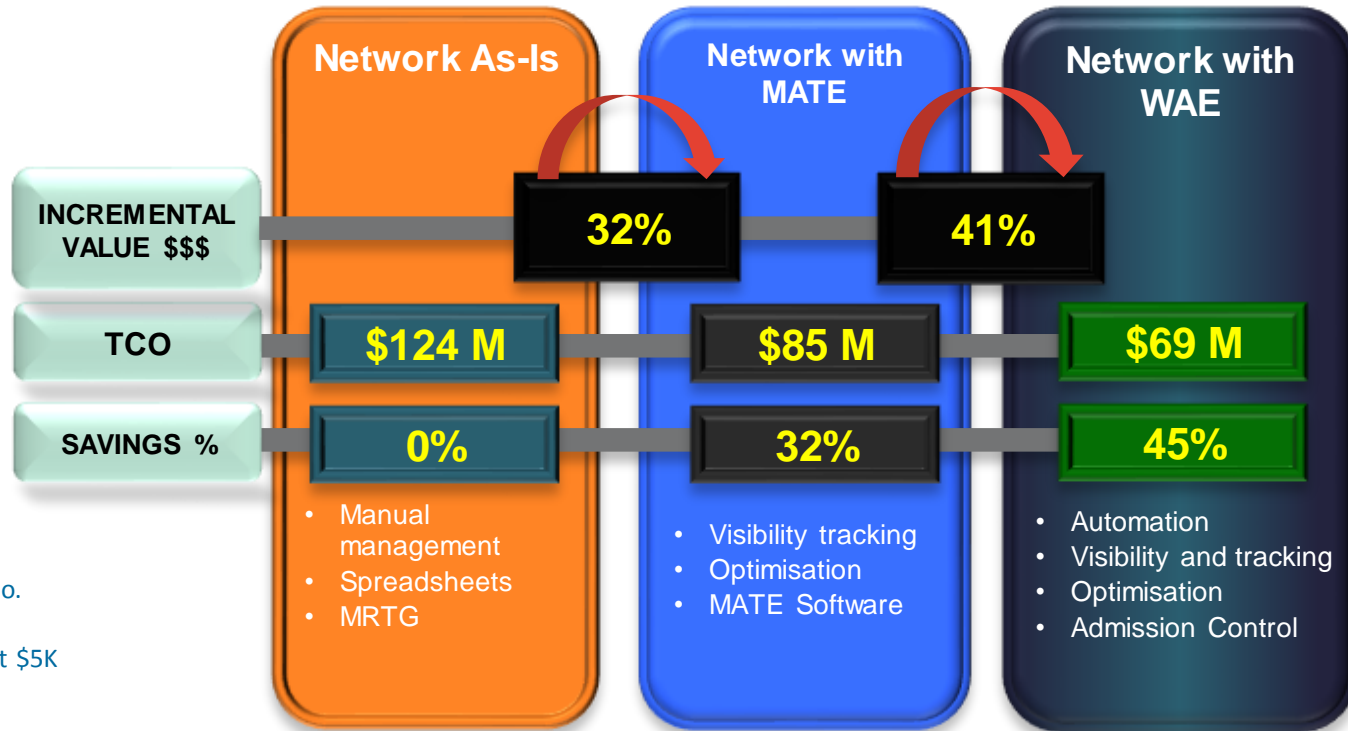 - Interface to allow room for failure

- **Desired Mode**
  - Push peak utilisation to 71% (room for failure response)
  - Rebalance automatically

Present Mode chart		
TCO	**$124 M**	

SAVINGS %

45%

TCO **$69 M**

Gradual Adoption Path

	Network As-Is	Network with MATE	Network with WAE
INCREMENTAL VALUE $$$		32%	41%
TCO	$124 M	$85 M	$69 M
SAVINGS %	0%	32%	45%

Network As-Is
- Manual management
- Spreadsheets
- MRTG

Network with MATE
- Visibility tracking
- Optimisation
- MATE Software

Network with WAE
- Automation
- Visibility and tracking
- Optimisation
- Admission Control

Inputs:
10G Wavelength $65K/mo.
Number of 10G Links 22
Annual TCO per 10 G Port $5K
Number of Fiber Paths 4

Adoption Path

Journey from Instrumentation to Control

Scenario Analysis → **Network Visibility** → **Network Control**

Phase I
Design (Offline)

Phase II
Visibility

Phase III
WAE (Online)

WAN Automation Engine: Foundation For Business Apps
Build, Automate, Scale, Secure and Visualise Your Network in New Ways

Online Visualisation, Analytics and Business Intelligence
- BGP Route Visualizer
- Weather Map
- Business Intelligence

Automated Tunnel Creation & Traffic Load Management
- Tunnel Builder
- Tunnel Splitter
- Tunnel Balancer
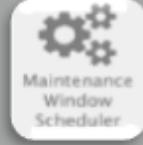
Managing inventory, security & maintenance windows
- Inventory
- Maintenance Window Scheduler
- Network ACL Manager

Additional Application & Network optimisation Apps
- Segment Routing Optimizer
- Application Latency Routing

Optimal Bandwidth Placement between Two or More Sites
- Bandwidth on Demand
- Bandwidth Calendaring

Offline Planning, Design & Analysis
- Offline Planning
- IGP Convergence Analyzer
- Failure Analysis

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Summary

- Visit World of Solutions

- WAN Automation Engine Demonstrations available at ESP booth

- Public Page on CCO www.cisco.com/go/wae
  - Links
    - Collateral, Solution overviews, ROI Whitepaper
    - Video Datasheet
    - Flashdemos

- ROI and Business Benefits white papers available at booth

Continue Your Education

- Demos in the Cisco Campus

- Walk-in Self-Paced Labs

- Table Topics

- Meet the Engineer 1:1 meetings

Q & A

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Thank you.