



# Transforming SP Business via Software Powered Networks

Chris Metz, Principal Engineer

SP CTO & Architecture Group, Cisco Systems

[chmetz@cisco.com](mailto:chmetz@cisco.com)

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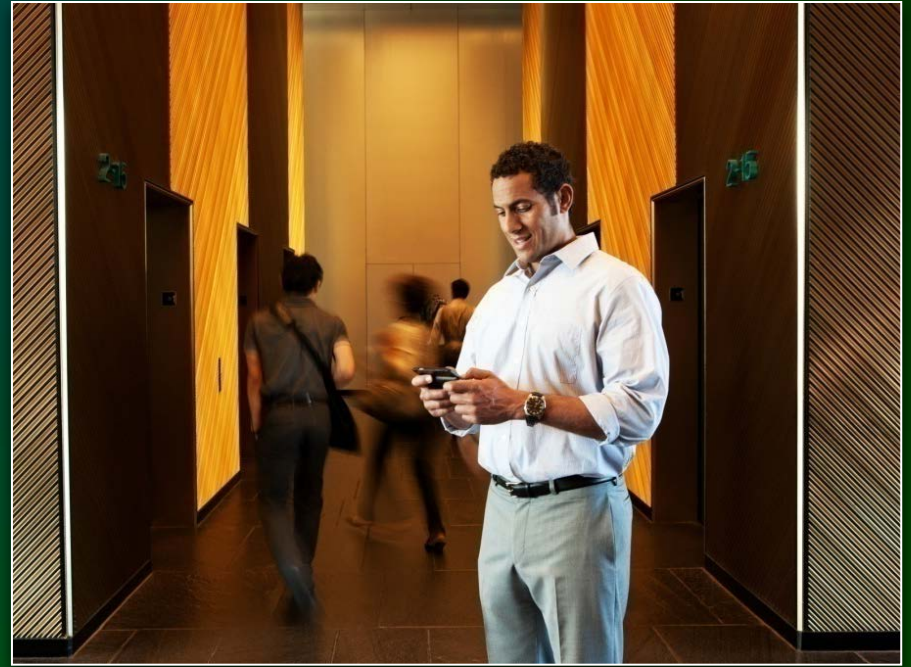
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# Upfront Observations (1)

- Last Year it was IPv4 address exhaustion and IPv6 Transition, with some Cloud thrown in ...
- This Year it is SDN and any classic noun from the network lexicon prepended with “Open-”
- Analytics is “White-Hot” at the moment
- Services placement decoupled from platform and topology
- Obtaining remarkably accurate marketing intelligence by observing my two teenage 4S-toting daughters work the social network grid
- Mobile traffic growth is huge ...

# Upfront Observations (2)

By 2016, global mobile data traffic will reach an annual run rate of 130 exabytes per year.



**130 Exabytes**  
is equal to:

- 130X More than all IP traffic generated in 2000
- 33 Billion DVDs
- 813 Quadrillion SMS text messages

Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2011–2016

# More: Average Mobile User; Traffic per Month



2011

**92 MB**  
Traffic/month



3 Video Clips



5 Audio tracks



1 Video call



5 App Downloads



2016

**1.2 GB**  
Traffic/month



10 Video Clips  
5 Videos



50 Audio tracks



3 Video calls



10 App Downloads

# Challenges

- It's a Mobile World
- It's all about the Apps
- Subscriber QoE expectations growing
- Time to Market typically wins ...
- Monetization
- Keep it simple

# Service Providers Require An Adaptable Architecture

How to Harness  
Network Value

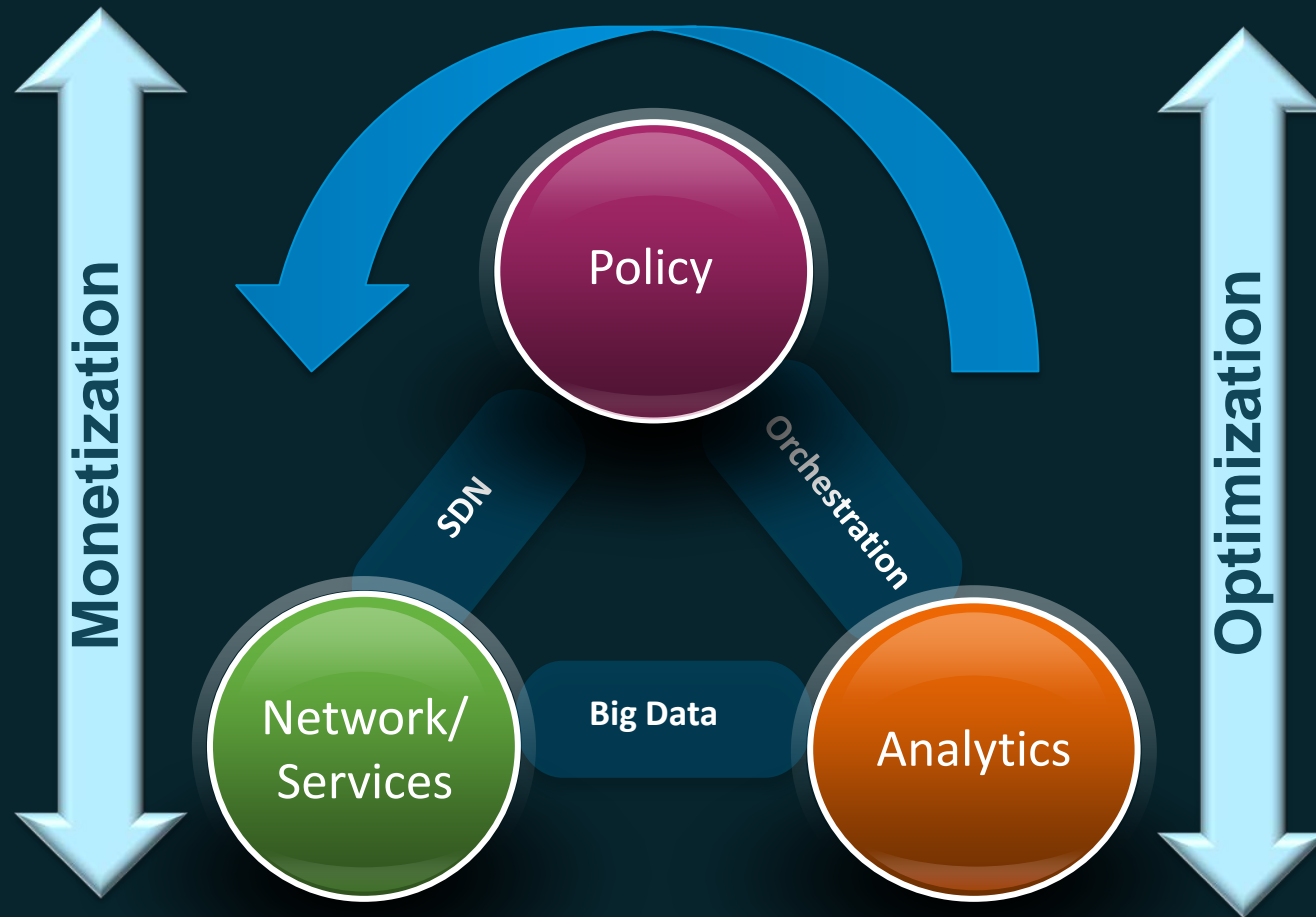
How to Sustain  
Profitability

How to Increase  
Business Agility

## Adaptable Architecture

Bringing the network to applications

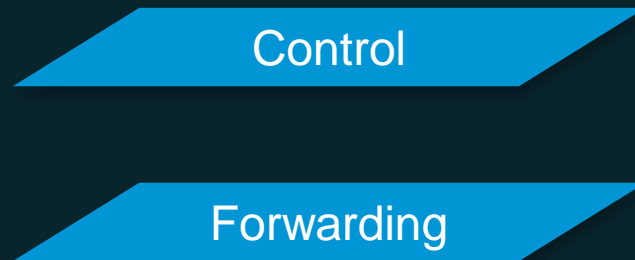
# Leveraging Network Value





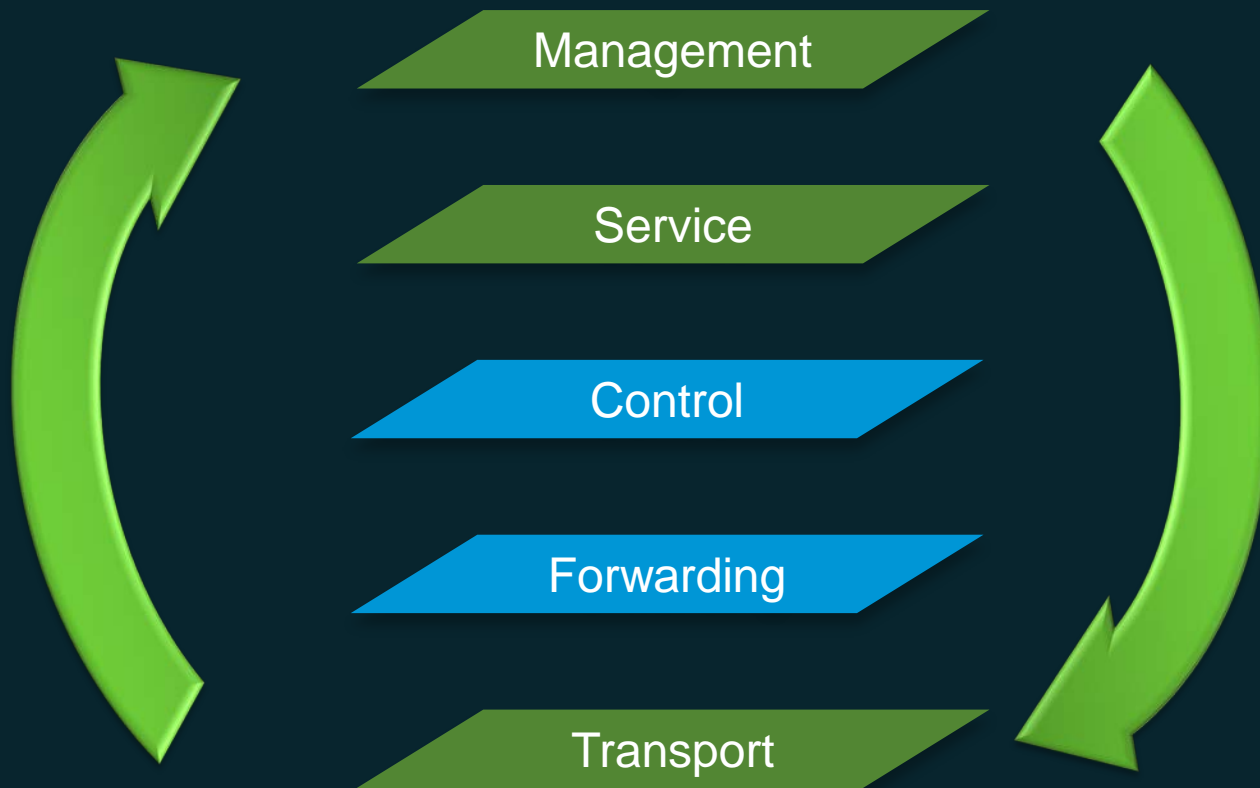
# Current SDN Focus

## Forwarding Programmability Through OpenFlow

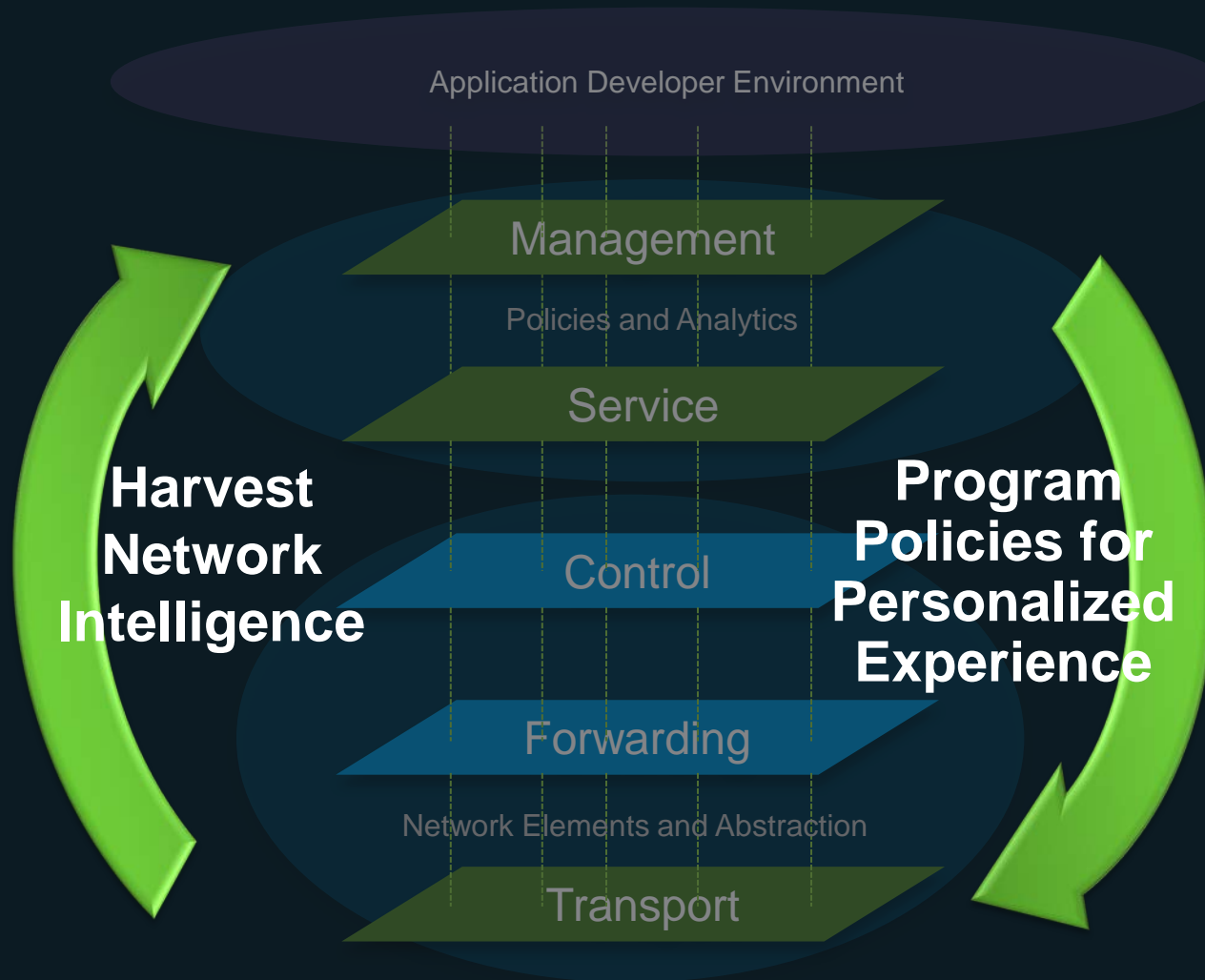


# Exposing Entire Network Value

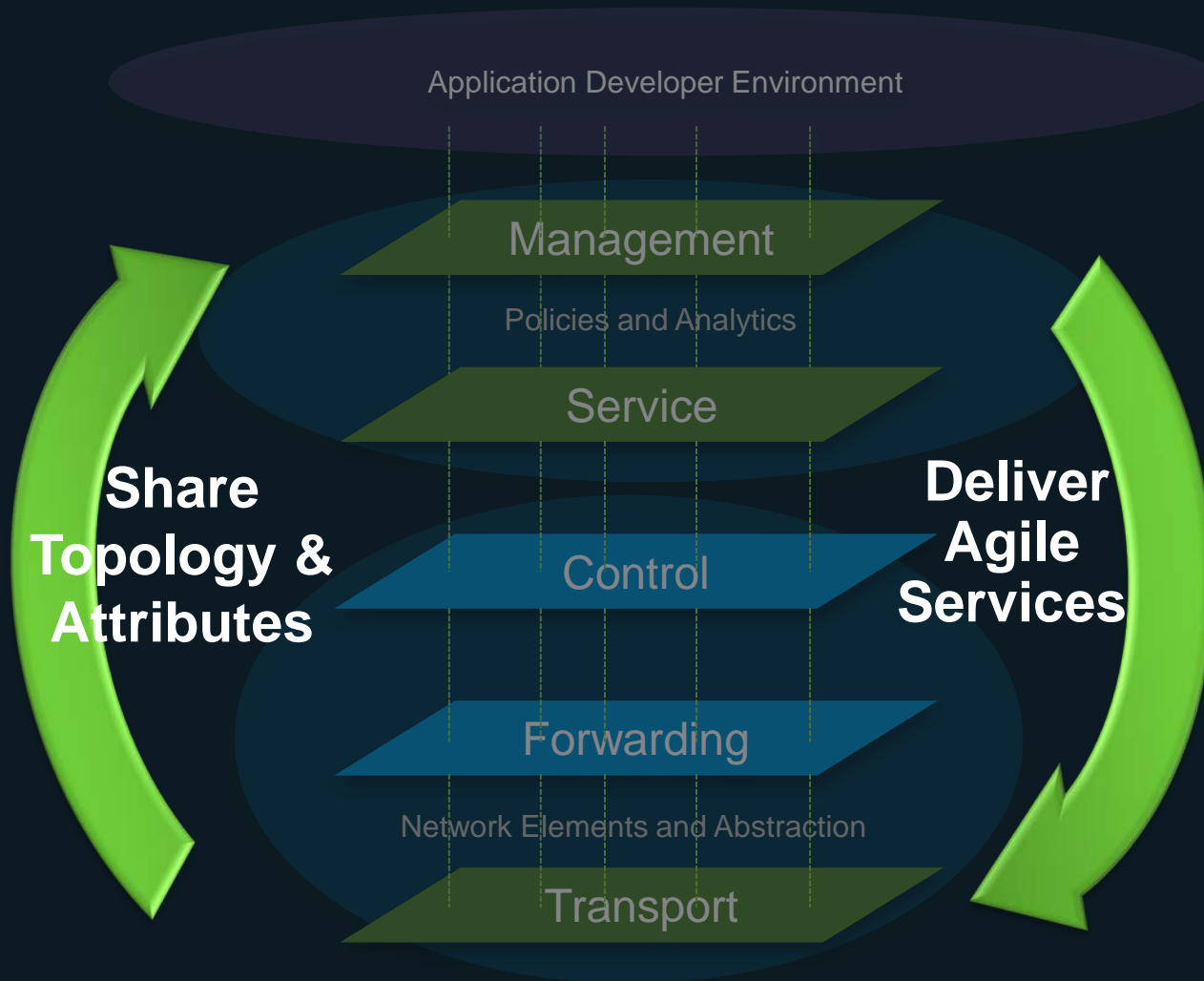
## Programmability Across Multiple Dimensions



# Exposing Entire Network Value - Monetize



# Exposing Entire Network Value - Optimize



# Software Powered Networking

## Foundation for Auto-adaptable Architecture

Services Platform

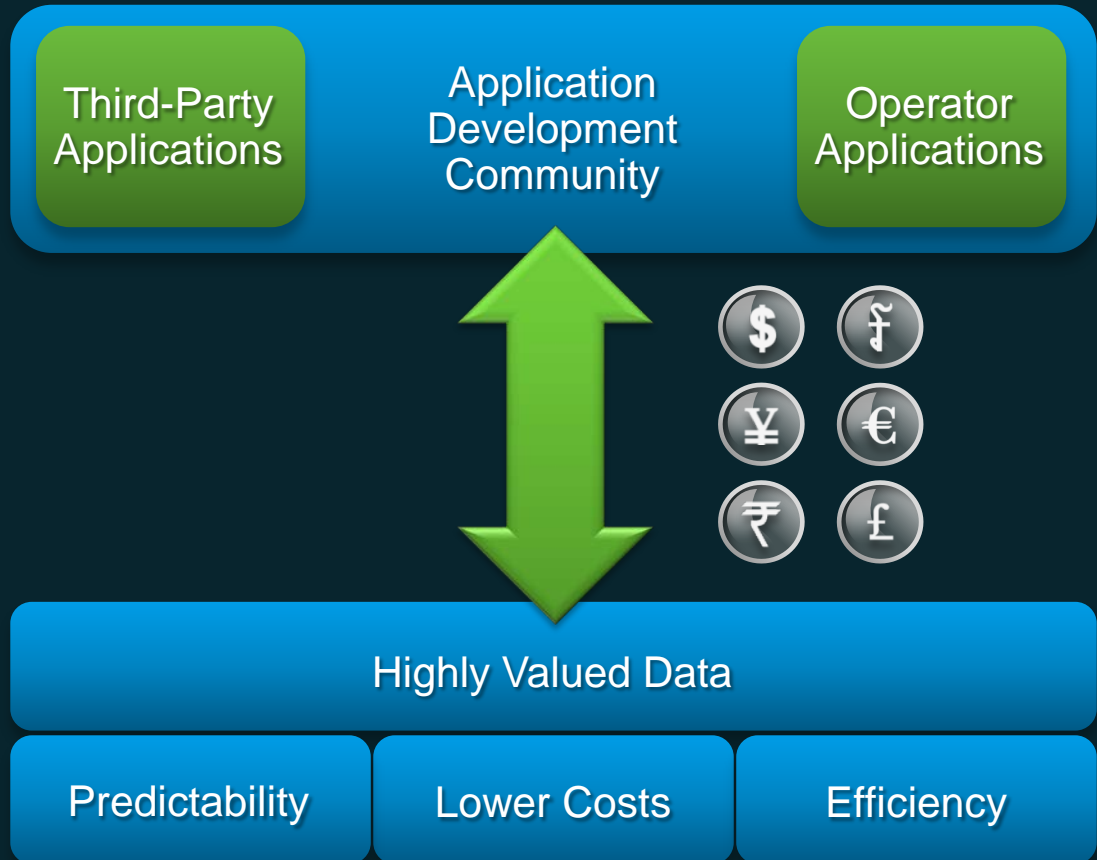
Application Development Communities

Programmable Interfaces

Network Visibility

# Service Platform Objectives

- Increase agility
- Mask complexity
  - Simplifying interaction
  - Enabling application community
- Harvest network intelligence
  - Extracting information
  - Abstracting network

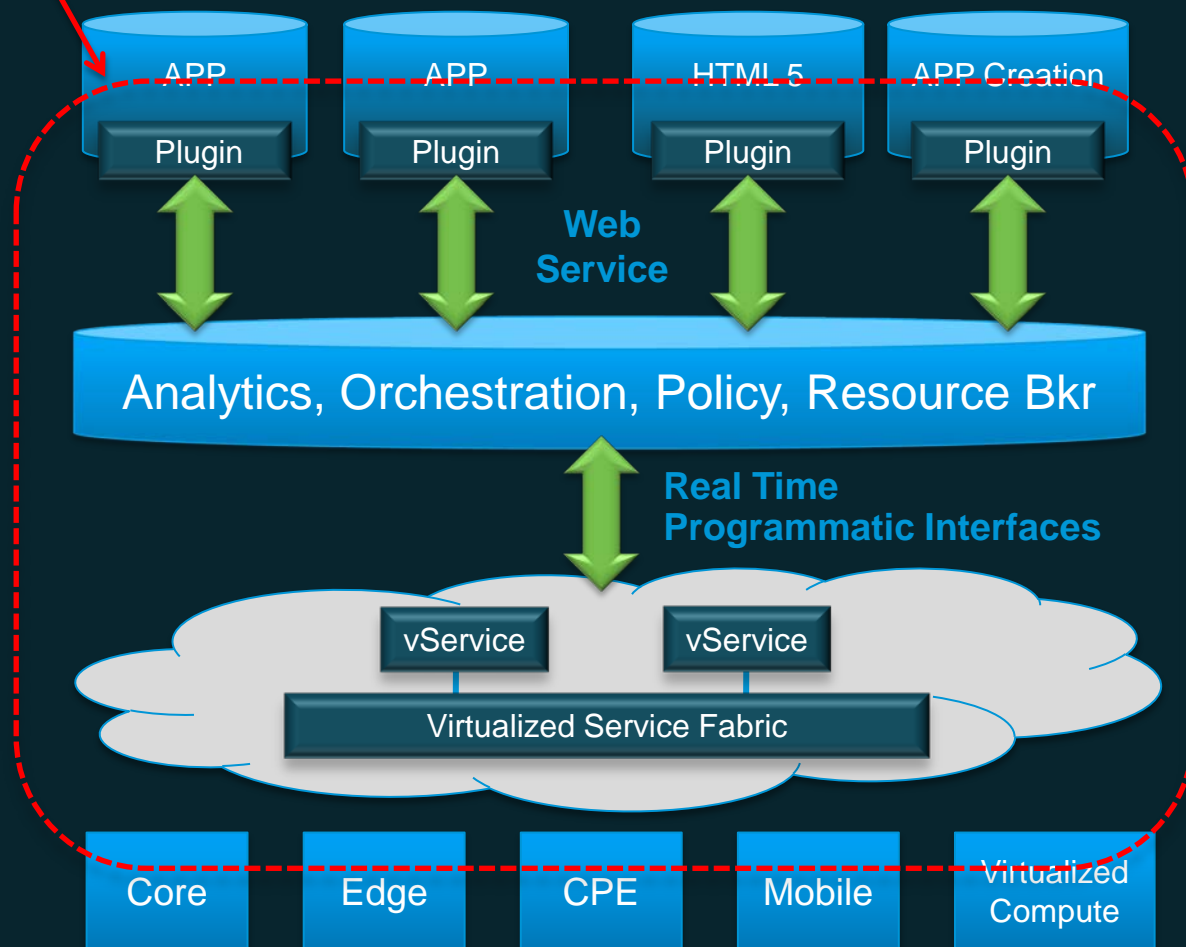


**Service Velocity and Business Agility**

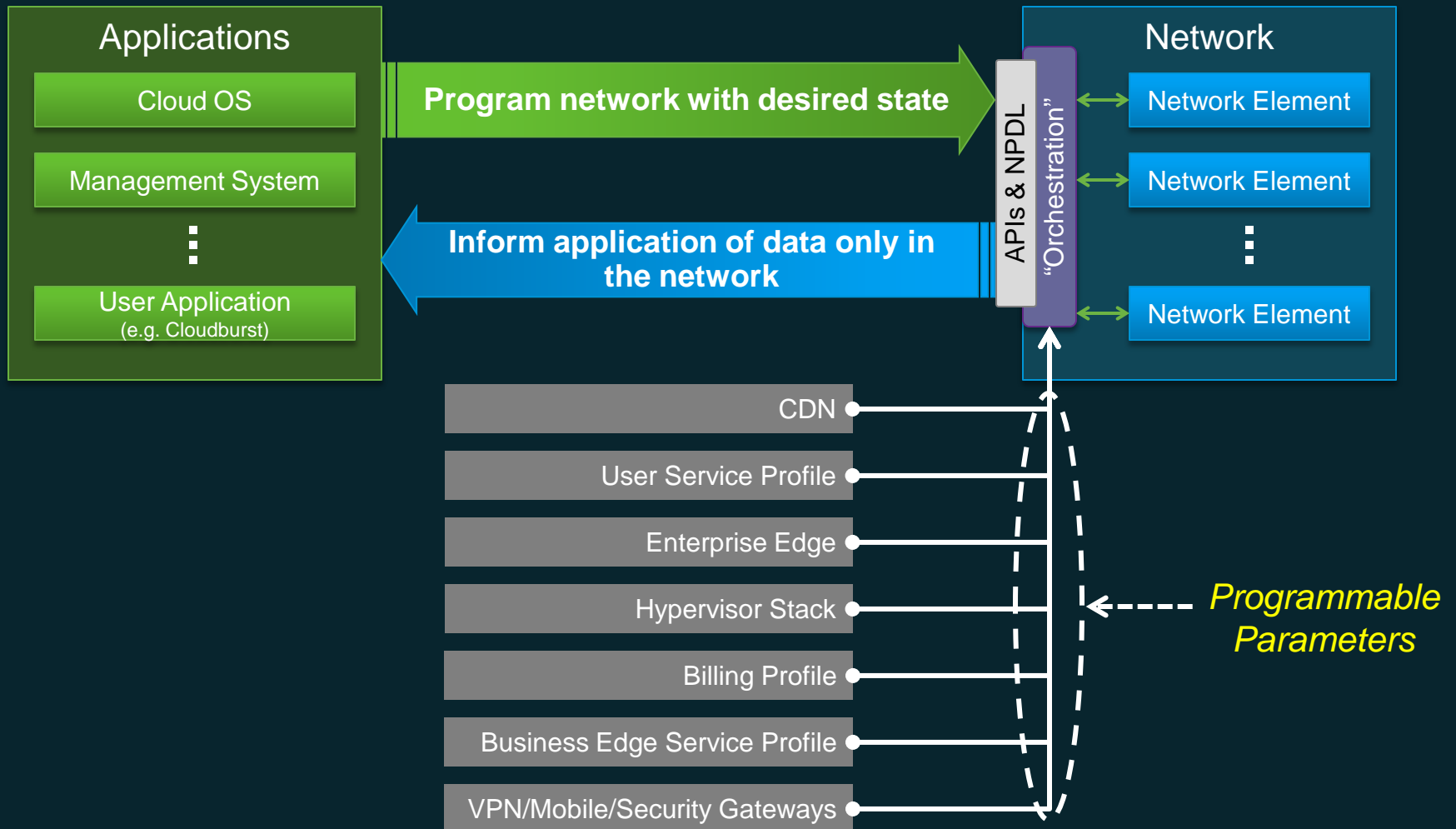
# Service Platform should mask Network Complexity

## Facilitate Application Development and Delivery

- Network programming interface (NPI)
- Build into large HTML5 environment
- Network services plug-ins
- Maximized developer pool
- Holistic network view

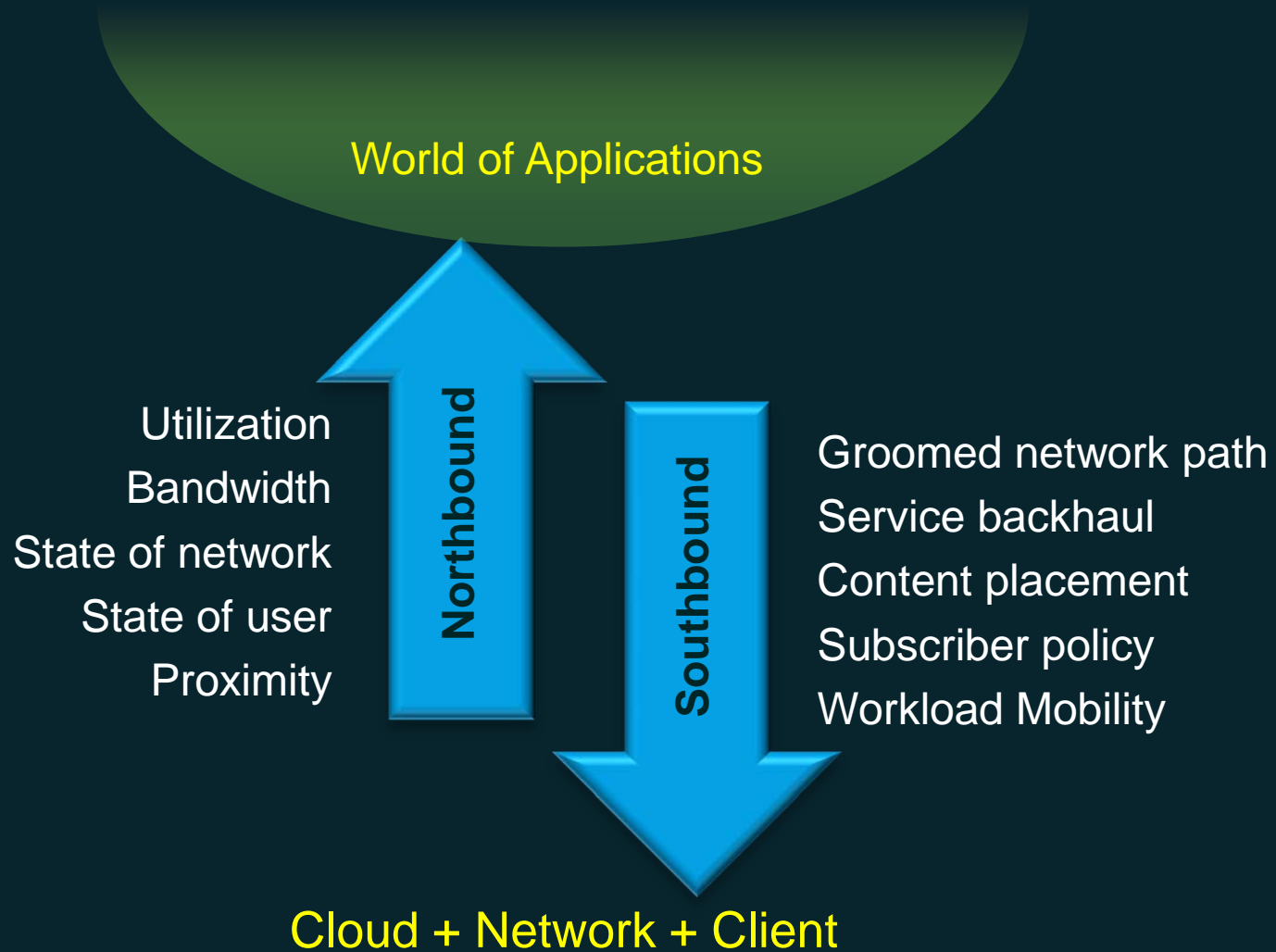


# Service Platform interaction w/ Multiple SP Parameters





# Bidirectional Network Programmable Interface Across Compute, Storage & Network

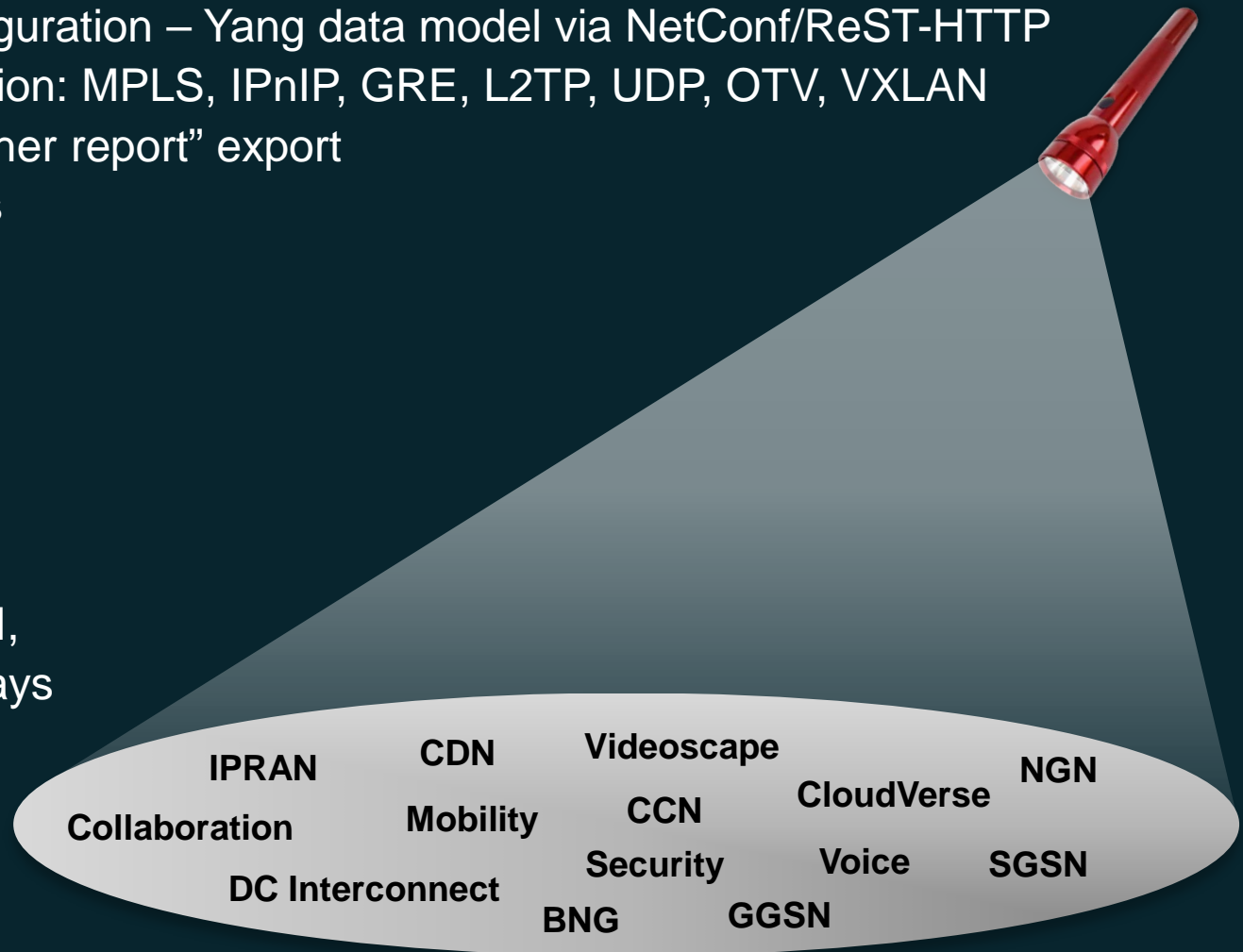


# Holistic Network View—No Blind Spot

## Initial Areas for Consideration

- Programmatic configuration – Yang data model via NetConf/ReST-HTTP
- Tunnels/Encapsulation: MPLS, IPnIP, GRE, L2TP, UDP, OTV, VXLAN
- Topology and “weather report” export
- Transport: Lambdas
- Cross Connect
- Routes, VPN
- Classifiers
- QoS
- Analytics

**Future:** Security, DPI,  
NAT, Gateways

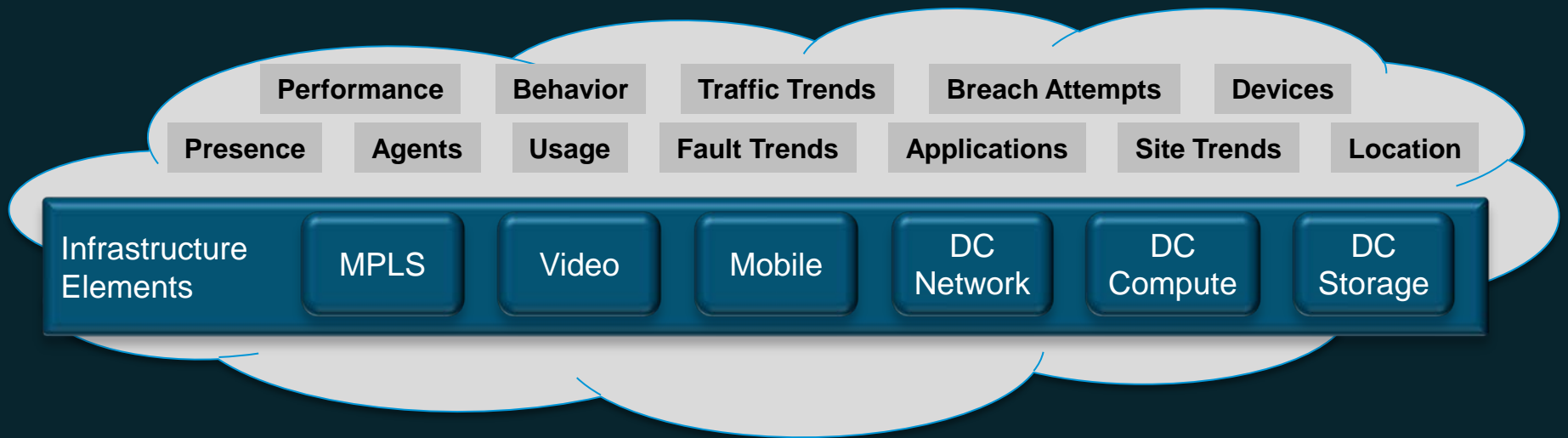


# The Path to Increased Value

## Tap the Network's Vast Store of Information

# World's Largest Gold Mine

## Without A Shovel



# Network Weather Report

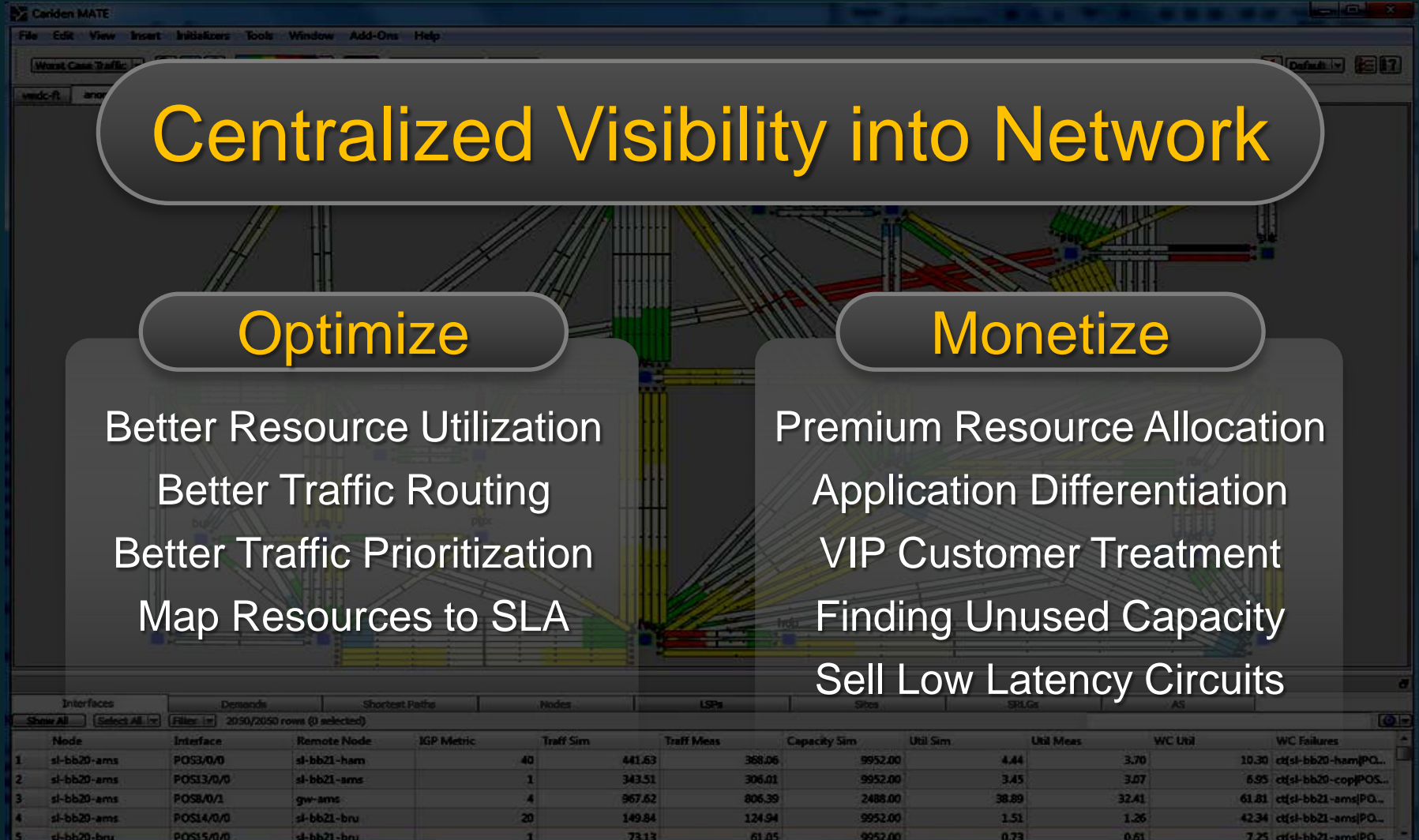
## Centralized Visibility into Network

### Optimize

- Better Resource Utilization
- Better Traffic Routing
- Better Traffic Prioritization
- Map Resources to SLA

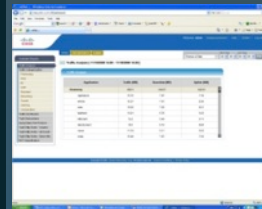
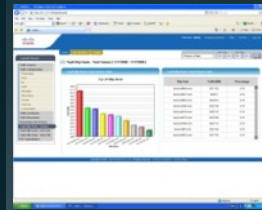
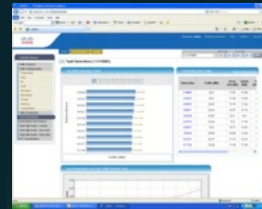
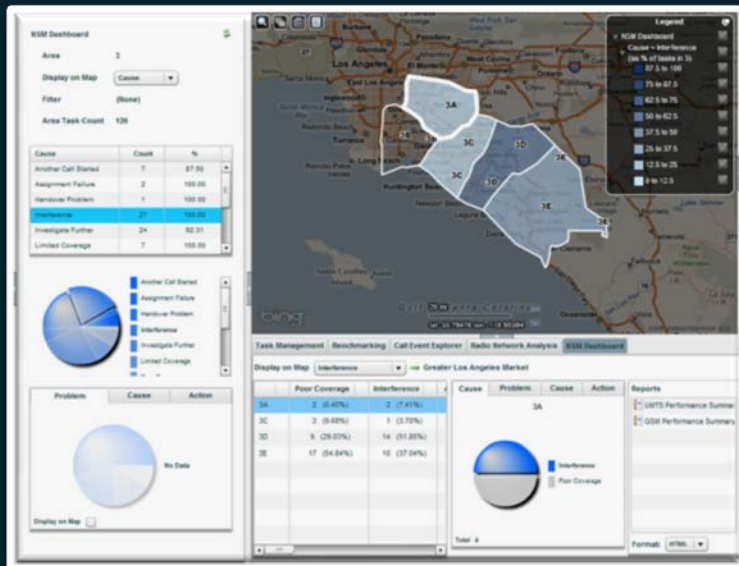
### Monetize

- Premium Resource Allocation
- Application Differentiation
- VIP Customer Treatment
- Finding Unused Capacity
- Sell Low Latency Circuits



# Real-time Analytics

## Analysis for Network Optimization, Targeting New Services



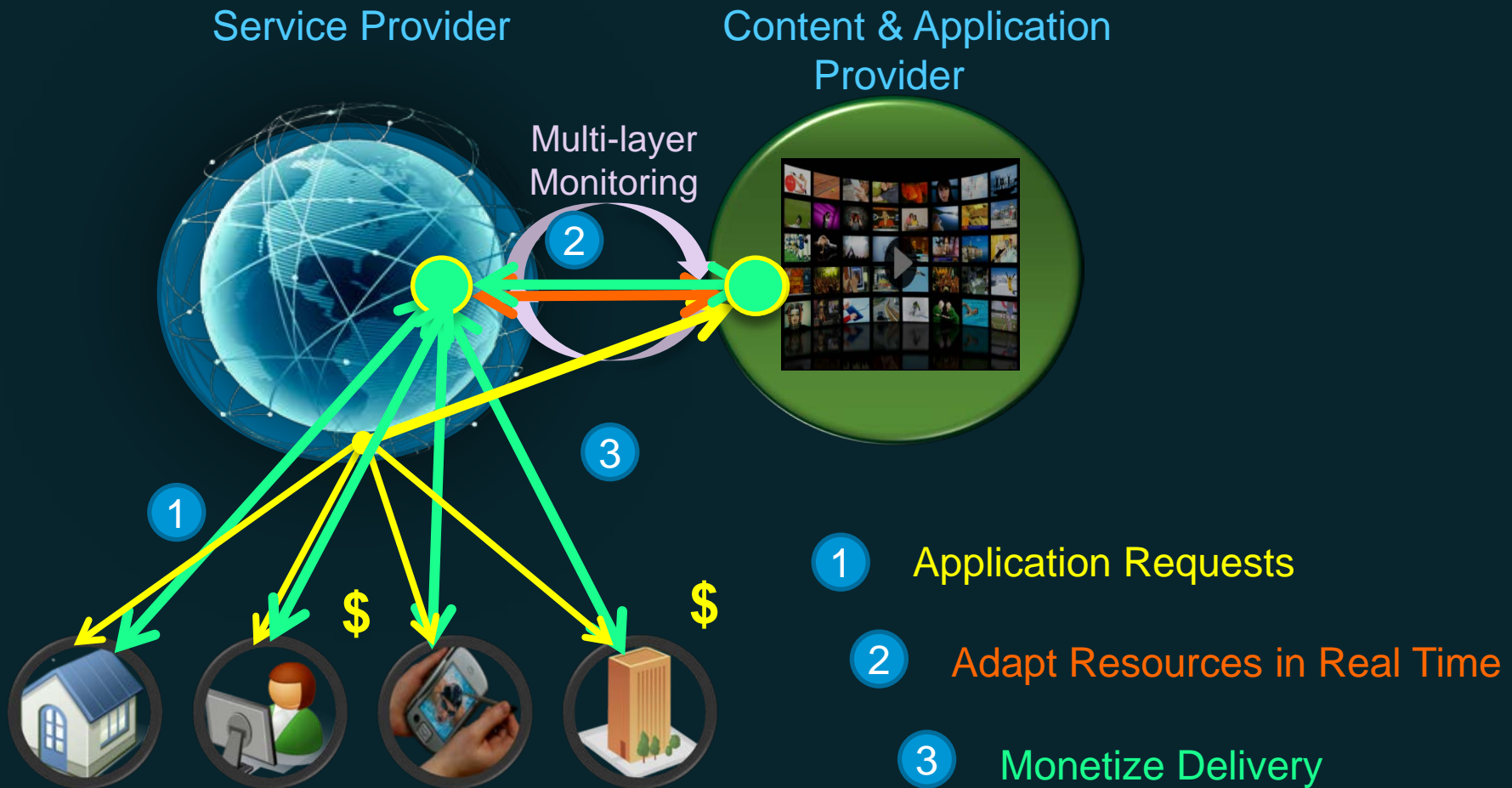
**Subscriber**

**Network**

**Application**

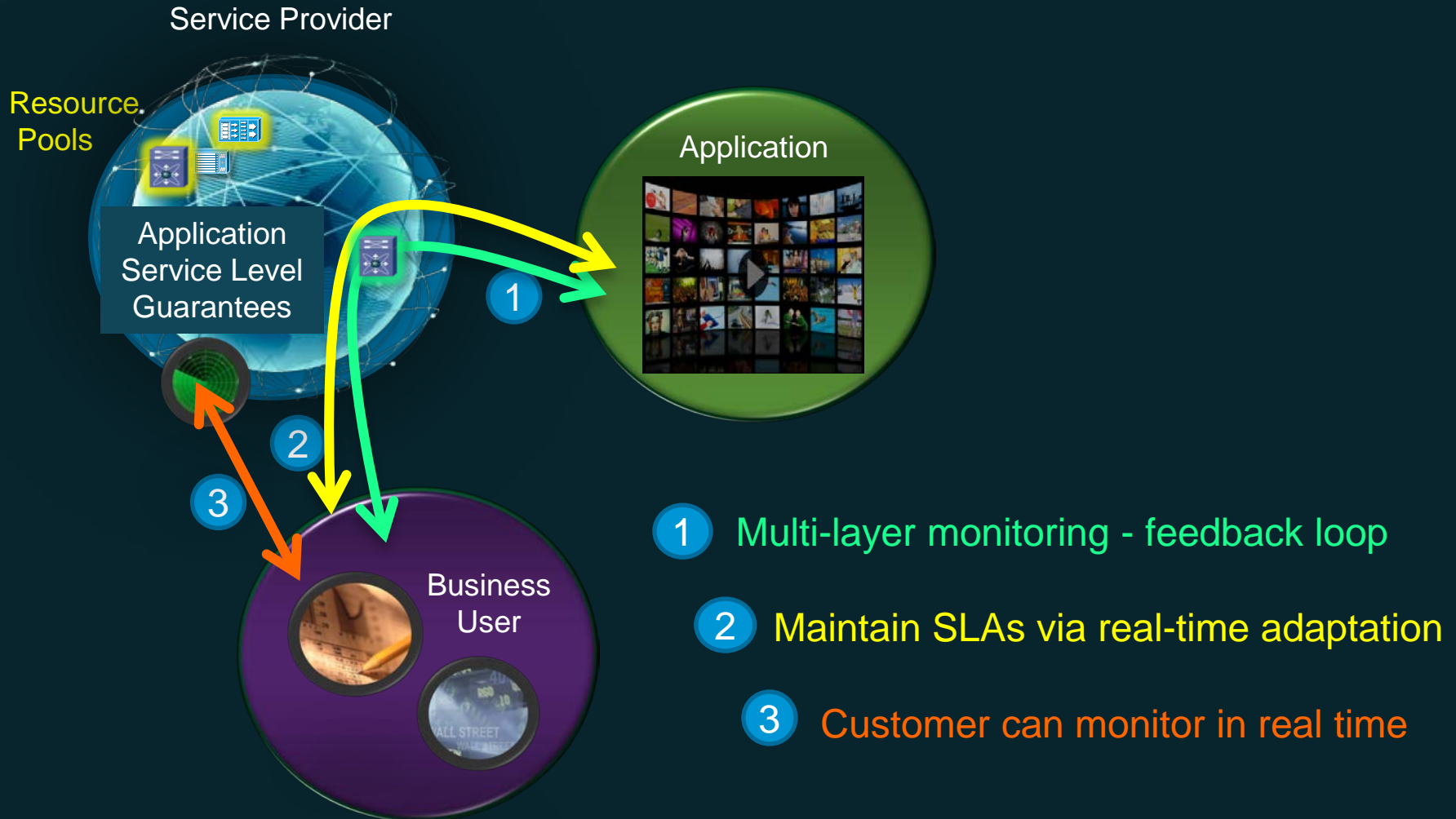
...Extract, Consolidate, Correlate, Customize and Monetize...

# Monetize New Application Economy





# Optimize With “Network Weather Report”



More Information

Optimized Networks

Complete Development Environment

Richer Applications

Happier Users

Greater Revenue



# In Summary

Cisco Services Platform

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Increase  
Service Velocity

salesforce

amazon.com.

ORACLE



NETFLIX

hulu

Disney

Harvest Network  
Intelligence

\$\$\$

# References

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Thank you.

