The Intelligent Edge
Managing Network Traffic at the Edge

Alan D. Percy
alan.percy@telcobridges.com
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Intelligent Edge Implementations

AT&T

All your network functions.  One device.  AT&T FlexWare.
Intelligent Edge Implementations

Verizon Virtual Network Services – graphic from Verizon Enterprise Services
The Intelligent Edge

What is it?

How Does it Work?

What can you do with it?
Challenges for CSPs

- Agility - Deploying New Services
  - Competing with OTT Services
- Network Security
- Reliability & Scalability
- Network Traffic Management
- Reduction of CPE SKUs
- Cost of Truck Rolls
The Dumb Edge

- Customer Access
- Service Provider Termination
- Provides Point of Demarcation
  - End of Responsibility for CSP
  - “Anything beyond this point is your problem”
- No intelligence
The Smart Edge

• “Smart Jack”
• Allowed remote Loop-back testing and diagnostics
• Fixed function device
  • Firmware-based
  • Difficult / Impossible to update without truck roll
  • Can’t be expanded
  • No new capabilities

Graphic by Kgrr at English Wikipedia.
The “Smarter” Edge

- Multi-Service Router
- Combined functions:
  - Network termination
  - Router / Switch
  - WiFi
  - Gateway / SBC / SIP Proxy
- Closed, Purpose-built Devices
- Fixed Function

Cisco 887-K9 MSR
The Intelligent Edge Platforms

New Platforms

• Network termination
• Flexible VNF implementation
  • Routing
  • Firewall
  • SD-WAN
  • Session Border Controller
  • SIP Proxy
  • Applications?

Ciena 3906 mvi

Juniper NFX250
Network Function Virtualization

ETSI NFV Framework

- Three core elements:
  - NFVI
  - VNFs
  - MANO
Virtual Network Functions Market

“The telecom virtual network functions (VNF) market to grow to $16.4 billion in 2022 at a compound annual growth rate (CAGR) of 45.4 percent.”

International Data Corporation (IDC) report for the global telecom VNF market
Intelligent Edge VNF Examples

- Application Delivery Controller
- Media Server
- Session Border Control
- Routing
- SD-WAN
- Firewall
Core vs Edge Debate

Where to put the network intelligence?

• Core
  • Centrally managed
  • Virtualization / Cloud technologies

• Edge
  • At the customer premises
  • Point of demarcation
Intelligent Edge Use Cases

• Wireless Micro & Pico Cells
  • Residential
  • Retail
  • Public Spaces
  • Malls
  • Large Venues
Intelligent Edge Use Cases

Content Delivery Networks

- Neighborhood-level Multi-media distribution
- Streaming TV and Movies
- Offloads high-volume traffic
- Cable and FTTH operators
Intelligent Edge Use Cases

Point of Sale

- Network termination
- Credit Card Authentication
- Encryption/Security
- Speed Transaction Processing
- Manage network outages
Virtual Business Gateways

• Combining routing, switching, & gateway with SD-WAN
• Application service delivery
• Traffic Shaping
• Quality Monitoring
Case Study

Joining us on the line...

Sergio López
Engineering Manager at Marcatel
Monterrey Area, Mexico
Case Study

About Marcatel

– Founded in 1994 in Monterrey, Mexico
– Services over 100 countries
– 4,600 km of fiber
– Offers cloud, Internet, contact center and SIP Trunking
Case Study

Challenges:

– “Payday Problem” – too much traffic on payday
– Needed call rate limiting for SIP trunks. Application to gracefully limit outbound calls from customer’s dialers.
– Upgrades to the core of their network would be very costly
– Made more sense to manage traffic at the edge of the network
– Modifications to routing and Display Name are difficult
Case Study

Solution:

– SBC at customer premises with call rate limiting
– Enforcing call rates per SLA
– DOS/DDOS Protection
– Call routing
– Display Name Substitution
– Centrally managed
– Easy to install and maintain
Solution:

EDGE SBC FOR CALL CONTENTION

CUSTOMER PREMISES

Dialer/ACD

FREESBC BAREMETAL

Ciena 3906 mvi

Filter invites By CPS limit At TelcoBridges

High speed dialer (Up to 3,000 CPS)

n invites Originated by customer

CORE SBC

IXC SBCs

Carriers Ip IXC

Carriers TDM IXC

Carriers Ip IXC

Carriers IXC SBCs
Case Study

Benefits / Results

• SIP Trunking Customers adhere to SLA
  – Intelligent and graceful call rate limiting
• Remote management by service provider
• Calling party modification simplification
• Avoided expensive upgrades to core network
• Flexible scaling to fit customer growth
• New opportunities for applications
Learn more

• SDxCentral Report
  • 2018 State of the VNF Market
• More about FreeSBC at: FreeSBC.com
• TelcoBridges Blog: blog.telcobridges.com
• FreeSBC “How To” Video Series on YouTube

Q/A