The Intelligent Edge
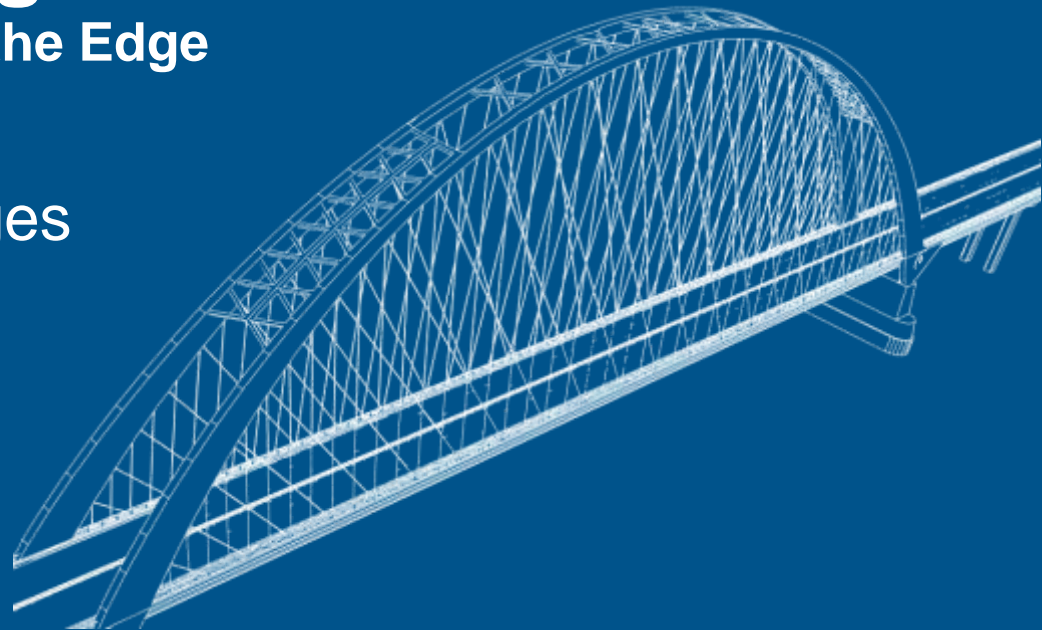## Managing Network Traffic at the Edge

Alan D. Percy - TelcoBridges

Sergio López - Marcatel

October 2018

The Intelligent Edge

What is it?

How Does it Work?
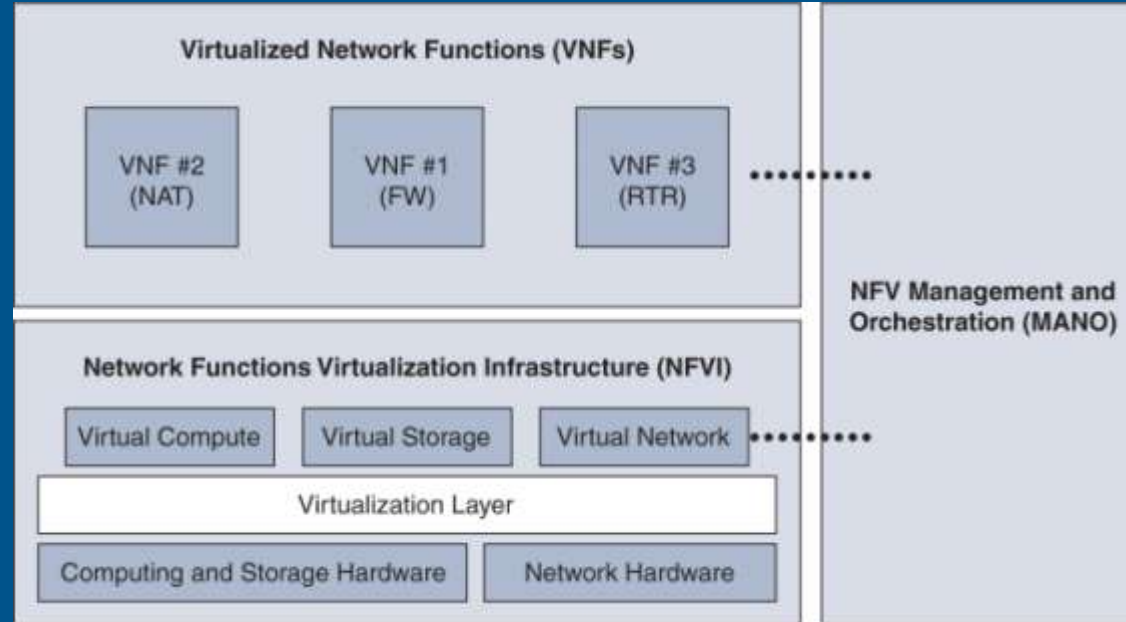
Use Cases?

Challenges for CSPs

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

Network Function Virtualization

ETSI NFV Framework

- Three core elements:
  - NFVI
  - MANO
  - VNFs

ETSI NFV Framework – graphic from InformIT

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
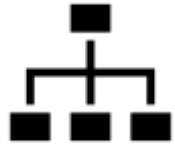
The Intelligent Edge Platforms

New uCPE Platforms

- Network termination

- VNF platform

- Orchestration and Management Software

- Range of processing resources

Intelligent Edge VNF Examples

Application Delivery Controller

Media Server
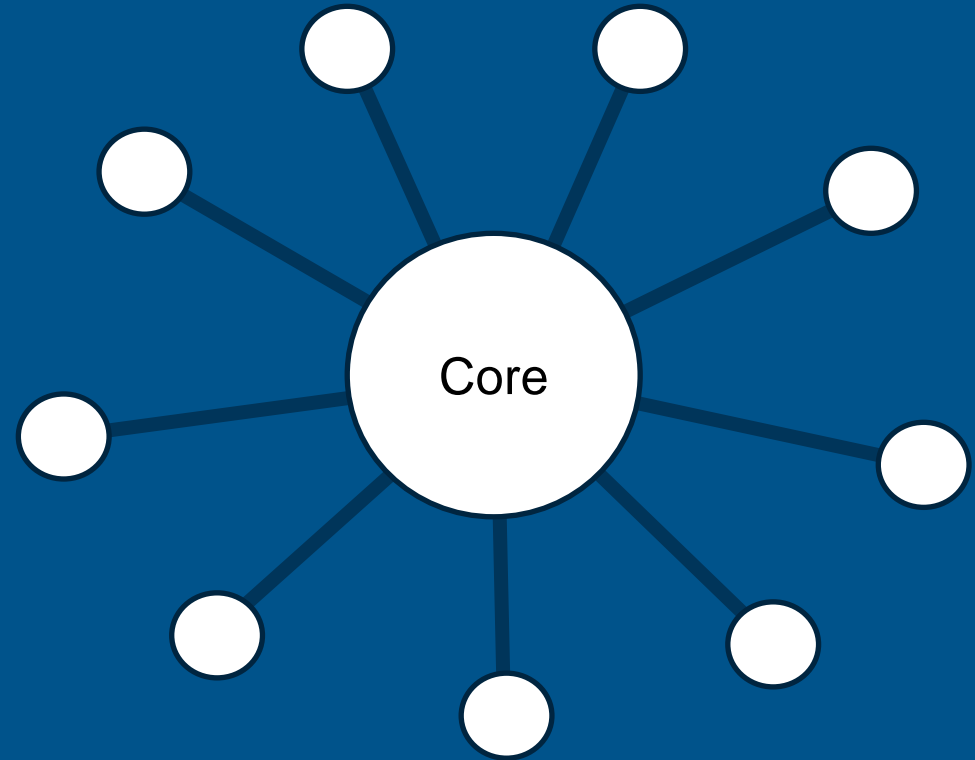
Session Border Controller

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

Enterprise

- Network termination
- Encryption/Security
- SD WAN
- POS Systems
- Voice via SIP Trunking

Intelligent Edge Use Cases

Using VNF to create Virtual Business Gateways

- Combining routing, switching, routing and SD-WAN
- Application service delivery
- Traffic Management
- Quality Monitoring

Application	Application	Management
Session Border Control		
VPN	Firewall	
SD-WAN	Routing	
Layer 1 / Switching		
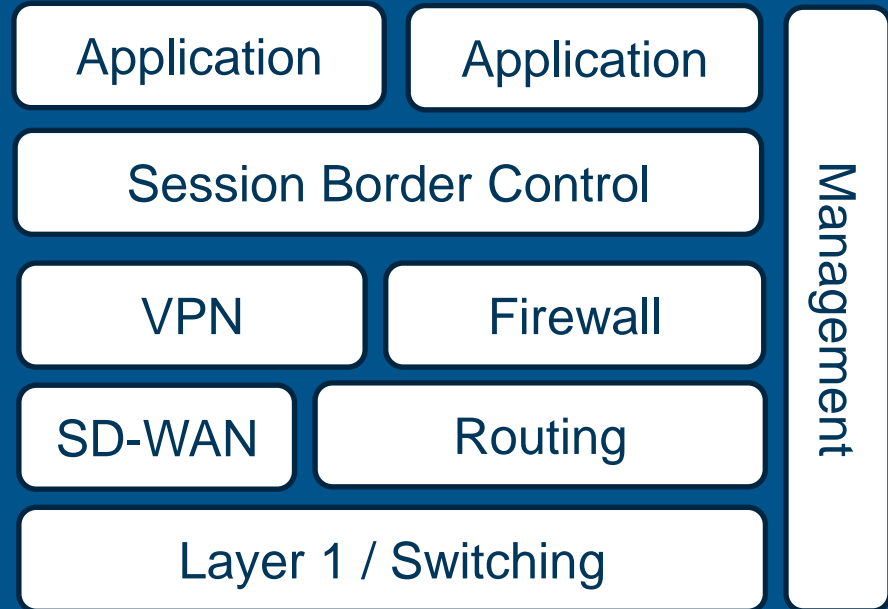
Case Study

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



More than 3,000 buildings connected

Case Study

Challenges:

- "Traffic Flood Problem" – too much traffic, exceeding SLA
- Needed gracefully call rate limit SIP trunks.
- Can't upgrade core network SBCs to keep up with traffic growth
- Core network upgrades are very costly
- Made more sense to manage traffic at the edge of the network
- Cost of SBC for the edge of the network
- Modifications to routing and Display Name are difficult
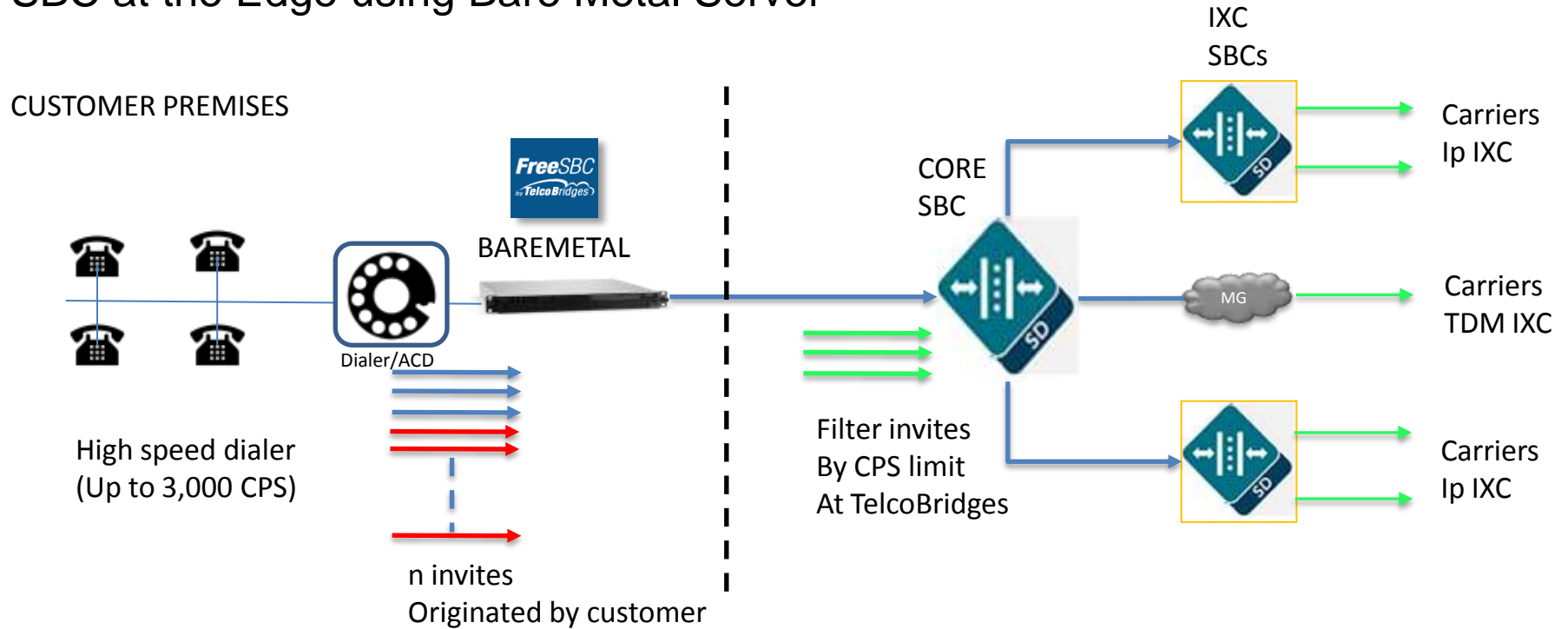
Case Study

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

SLA
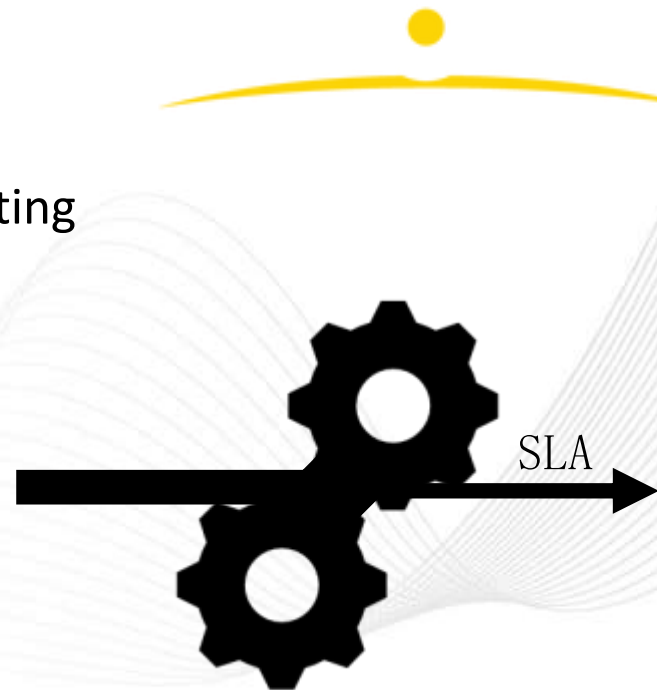
Session Border Controller
Call Rate Limiting

Solution:

marCatel.

SBC at the Edge using Bare Metal Server

IXC
SBCs

CUSTOMER PREMISES

FreeSBC
by TelcoBridges

BAREMETAL

CORE
SBC

Dialer/ACD

Carriers
Ip IXC

Carriers
TDM IXC

MG

High speed dialer
(Up to 3,000 CPS)

Filter invites
By CPS limit
At TelcoBridges

Carriers
Ip IXC

n invites
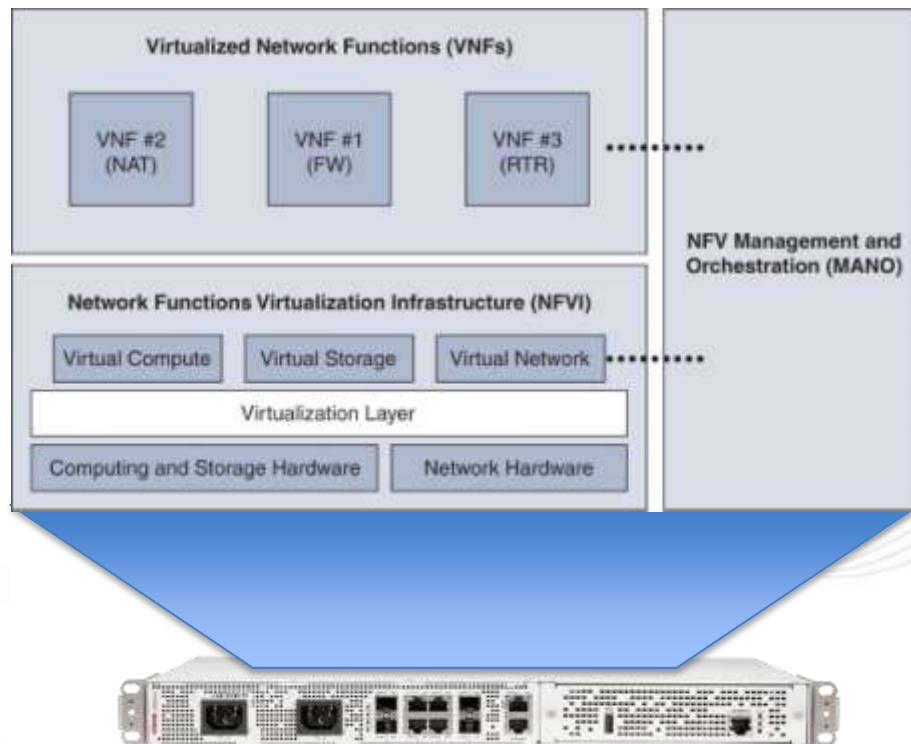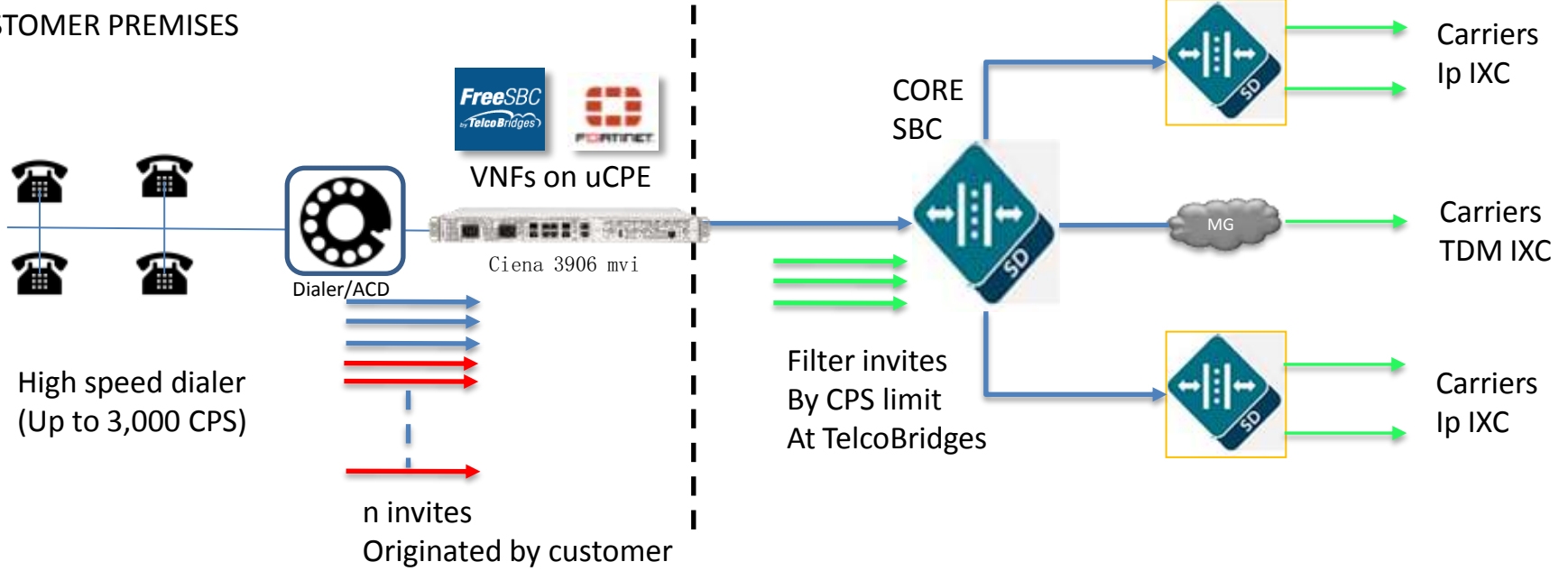Originated by customer

Utilizing VNFs at the Edge

- Leverage ETSI NFV Architecture

- Ciena 3906mvi uCPE

- Fortinet for Firewall & Router

- TelcoBridges FreeSBC as a VNF

Solution:

marcatel.

Intelligent Edge Implementation

Diagram labels:

IXC SBCs

CUSTOMER PREMISES

FreeSBC by TelcoBridges

FORTINET

VNFs on uCPE

Ciena 3906 mvi

Dialer/ACD

High speed dialer (Up to 3,000 CPS)

n invites
Originated by customer

CORE SBC

Filter invites
By CPS limit
At TelcoBridges

MG

Carriers Ip IXC

Carriers TDM IXC

Carriers Ip IXC

Case Study

Intelligent Edge Benefits / Results:

- SIP Trunking Customers adhere to SLA
    - Intelligent and graceful call rate limiting
- Remote management by Marcatel Network Operations
- Calling party modification simplification
- Avoided expensive upgrades to core network
- Flexible scaling to fit customer growth
- New opportunities for applications

Learn more

- More on Marcatel at: Marcatel.com
- More about FreeSBC at: FreeSBC.com

Q/A

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