



Network Intelligence with Allot Smart

(DPI based Visibility & Control)

Master Deck v10



Agenda



1. Industry Trends
2. The Service Gateway
3. Unique Value Proposition
4. Network Visibility with *SmartVisibility*
5. Traffic Management with *SmartTraffic QoE*
6. Policy Control & Charging with *SmartPCC*
7. Regulatory Compliance with *SmartRegulator*



Market Trends



Market Trends - I

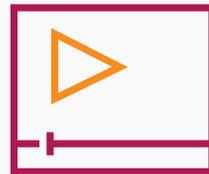
Encryption

- As encryption becomes ubiquitous, ML/AI based DPI is a must.
- Video (encrypted) remains number 1 traffic generator



Video

- Video is 60%-70% of total network bandwidth, and growing
- 32% CAGR in consumer video



5G

- 5G sees initial RAN deployments.
- Wider 5G core deployments in 2021
- PoC may be required towards end of 2019
- BW opportunity



Market Trends - II

Virtualization

- Western Tier-1 operators are focused on NFV/virtualization
- Others will continue to buy appliances
- First NFV sales



Net Neutrality

- Net Neutrality revoked in the US
- Effects, if any, yet to be determined
- Potential new/larger market/s for Allot



Merger

- Procera and Sandvine merger continues to present opportunity



Market Trends - III

Technology

- SD-WAN presents threat and opportunity to Allot in the enterprise domain



Congestion Management

- Congestion management demand @RAN and @backhaul rises
- Potentially larger market/s for Allot



GDPR

- Showstopper in EU



Market Trends - IV

Analytics

- Clear market demand for advanced analytics
- Insights, not Data..



Regulatory Compliance

- Control and Censorship are growing
- Potential new/larger market/s for Allot



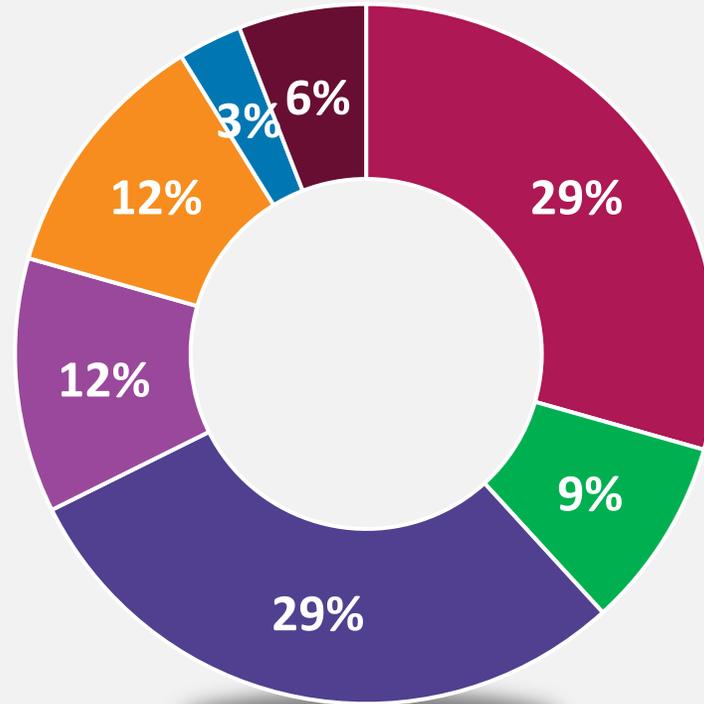
Security, IoT

- Growing and inter-related



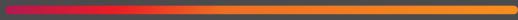
2017 - Tender Types

Telco/ISP Tenders Received - 2017



■ PCC ■ Analytics ■ TMF ■ SECaaS ■ Regulatory ■ IoT ■ DDoS

The Service Gateway



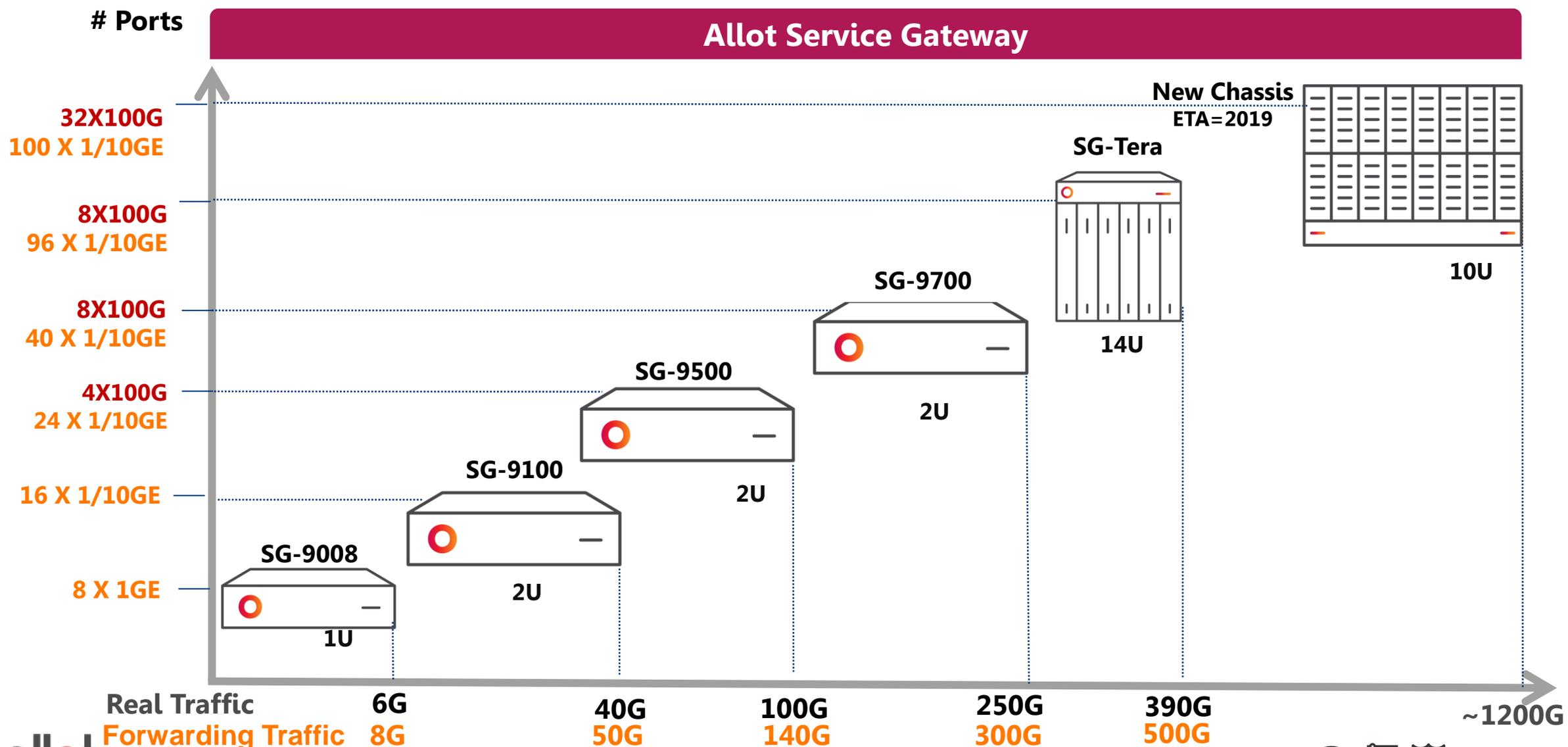
Allot Service Gateway

Allot Smart Solutions

Allot's fully virtualized, carrier-grade multiservice gateways provides a range of services to optimize CSP and Enterprise network performance, Quality of Service, and end-user Quality of Experience

Allot Smart solutions leverage visibility and control to make possible the rapid rollout of revenue-generating services

Allot HW Platforms for CSPs



Service Gateway Performance in a Table

- The table below summarizes the SG-9XXX performance per unit and number of 10/40/100 Gbps interfaces

SG Variant	1/10 Gbps interfaces	40/100 Gbps interfaces	Forwarding rate (Gbps)	Size (height)
SG-9008	8	--	8	1U
SG-9100 v2	16	--	50	2U
SG-9500	24	--	140	2U
SG-9500 v3	8	4	140	2U
SG-9700 config A	40	--	300	2U
SG-9700 config B	8	8	300	2U
SG-9700 config C	24	4	300	2U
SG-Tera	96	8	500	14U

Service Gateway is available as fully virtualized deployment

Our entire portfolio complies with ETSI NFV-SDN architecture and leading virtualization platforms.

Enables flexible and agile deployment of Allot solutions on CSP private clouds, facilitating smooth and easy transition of legacy networks to future-proof NFV/SDN architectures.

Benefits:

Faster Time-to-Market - Faster trial, deployment, and evolution of new services.

Reduce CAPEX - All hardware is based on COTS. No over-provision.

Agility & Flexibility - Easily scale up or down services to meet changing demand.

Reduce OPEX - Maintenance & Service provisioning from a central location.

SG-VE-200 - Virtual Chassis for NFV

SG-TERA

Host FB CC

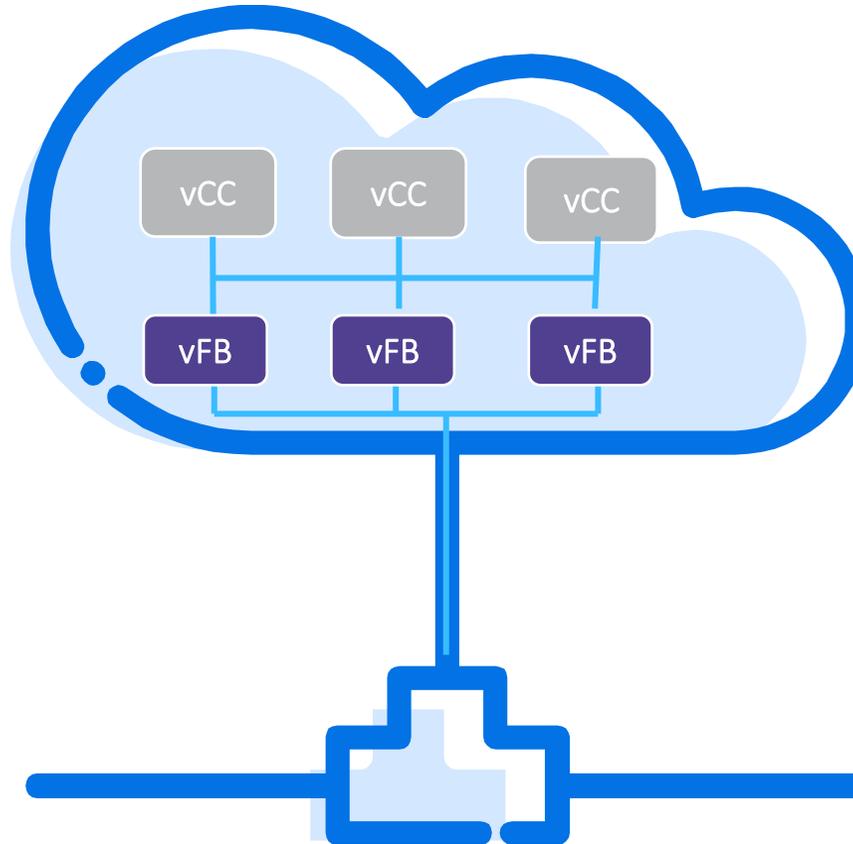


Modular Virtual
Chassis for NFV



SG-VE-200

vHost vFB vCC



- Designed for NFV
- Up to 200Gbps
- Full LCM functions
 - Bring Up
 - Tear Down
 - Scale Out
 - Scale In

SG-VE-200 - Virtual Chassis for NFV

SG-TERA

SG-VE-200

Host

FB

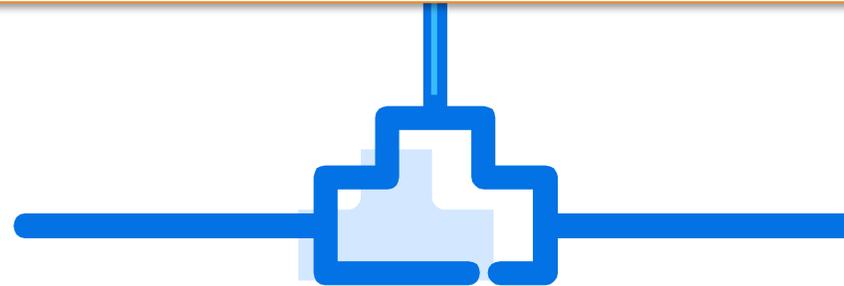
CC



SG-VE-200

A truly scalable Virtual Service Gateway for NFV Networks

- Designed for NFV
- Up to 200Gbps
- Full LCM functions
 - Bring Up
 - Tear Down
 - Scale Out
 - Scale In



allot Smart^{NW}

Allot Smart Unique Value Proposition





Allot Smart

Value Proposition

Save at least 10% of access bandwidth costs, defer capacity expansion by 1-2 years and reduce revenue leakage by 15%

Allot Smart is used globally by Tier-1 service providers to deliver differentiated services and increase operational efficiency at the lowest TCO

Key Benefits / Features

Fully NFV compliant multi-service platform that delivers:

- Traffic management including QoE-based congestion control & automatic removal of DDoS traffic
- Flexible policy and charging control and VAS delivery
- Granular, big data visibility into network, user, and application behavior
- Regulatory compliance by blocking illegal content and applications and retaining detailed data records



Network Visibility with *SmartVisibility*



SmartVisibility



Value Proposition

Turn detailed network, application, and user data into actionable insights that drive customer satisfaction and service profitability

Proactively optimize network resources and customer service plans to maximize revenues

Secure revenue thru data-driven detection of potential churners and revenue leakage

Key Benefits / Features

- Turn any complex business query into actionable, customized reports
- Target marketing campaigns and service bundling via data driven customer segmentation
- Enable informed and timely capacity investments
- Facilitate rapid and precise trouble shooting
- Retain detailed data records for regulatory compliance

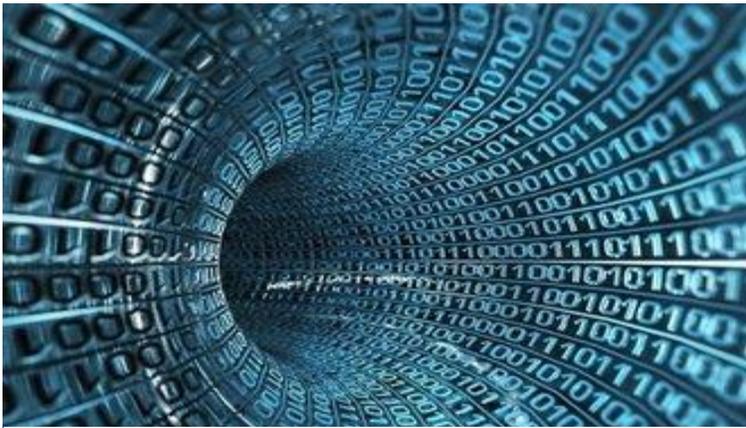
SmartVisibility ClearSee Overview



SmartVisibility: Network Analytics Solution Offering



Network Data Source



- Streaming Data Records
- Smart Data Source

Reporting & Analytics



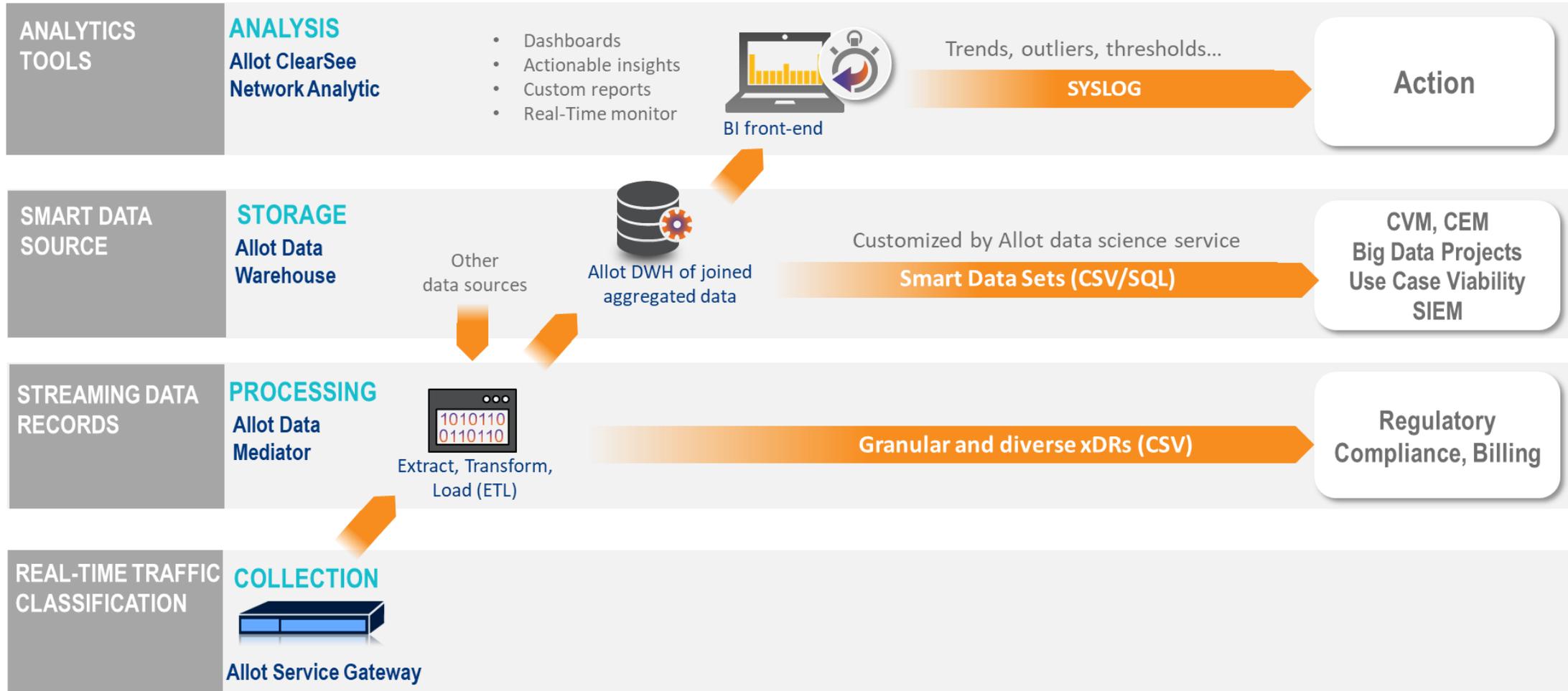
- ClearSee Network Metrics
- ClearSee Network Analytics
- ClearSee Real-Time Monitor

Services



- Custom Data Exports
- Data Curation
- Custom Analytical Reports

Allot Network Analytics – Data Flow



Allot Data Sets



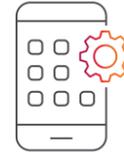
Web

Subscribers Web transactions activity



Sessions

Session metadata & usage information



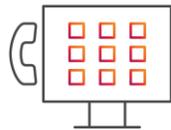
Applications

Application volume usage, activity, and QoE data



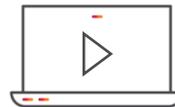
Policy

Classified traffic usage statistics per service plan and subscriber info



VoIP

VoIP minutes usage stats per service



Video

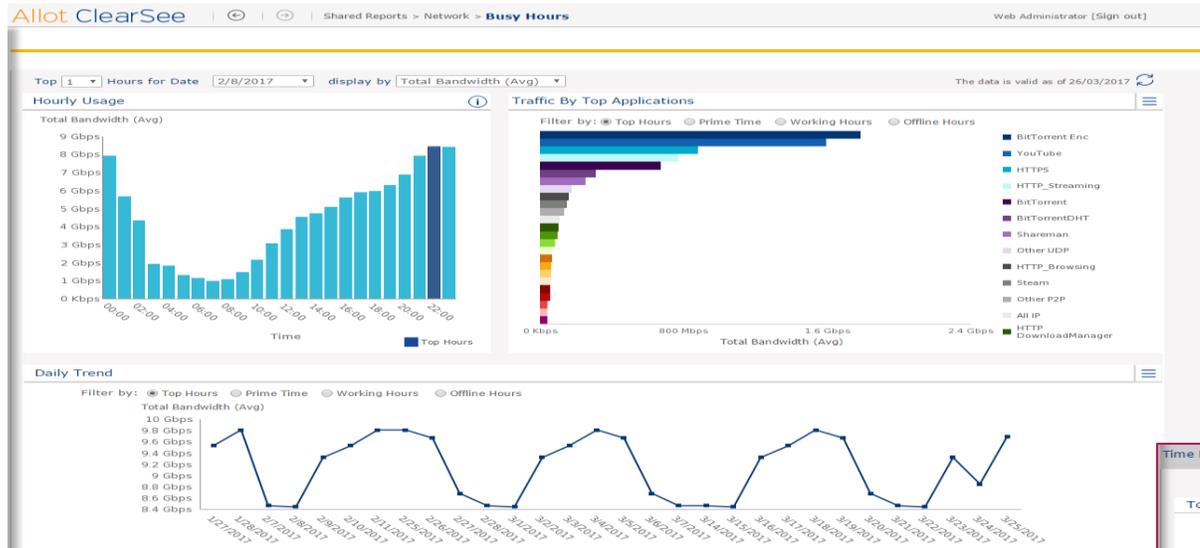
Video watch-level usage and QoE (under re-design)



Security

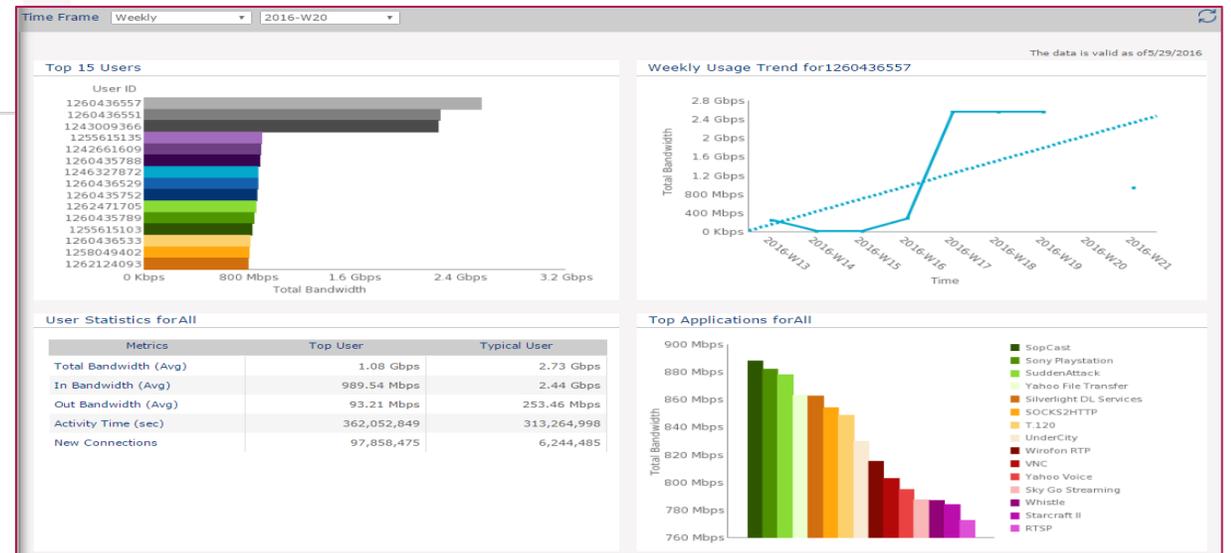
Malware, phishing, and unauthorized access events

Capabilities: Rich Set of OOB Canned Reports



- Network Busy Hours observed during late night hours (around 10 to 11 PM)
- Gain Visibility and Limit consuming Applications BW during busy hours!

- Heavy Users Top Applications BW consumption
- Gain Visibility and Manage Heavy users!



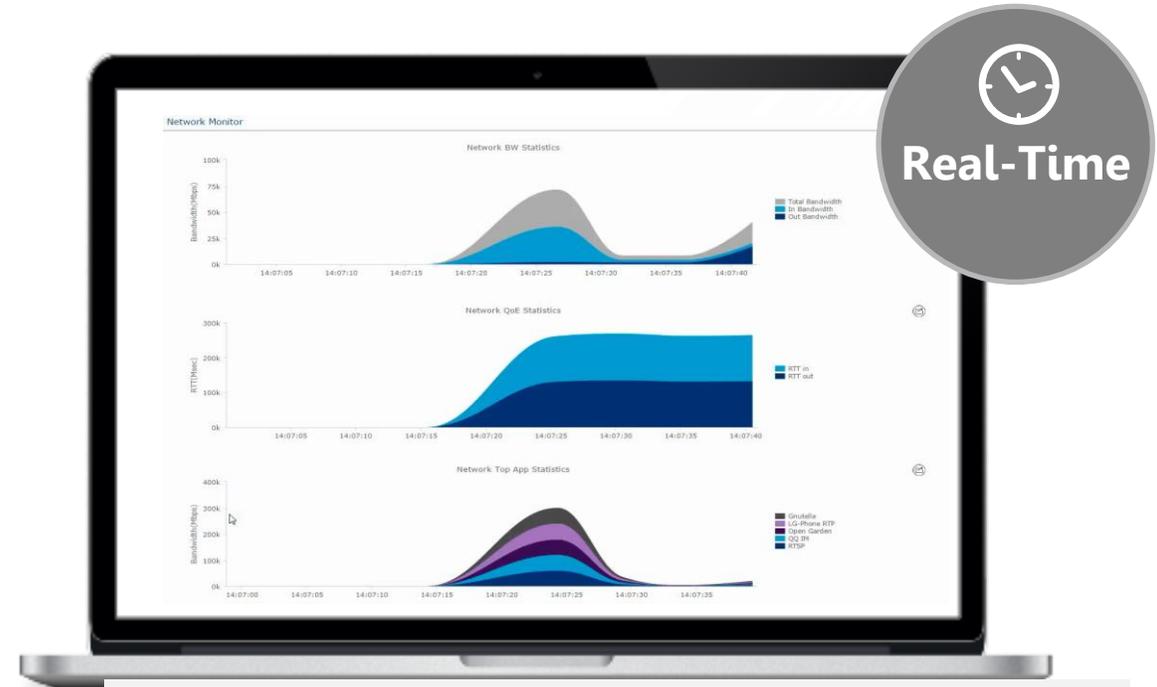
Capabilities: Real-Time Network & Subscriber Monitors



What?

- Real-time traffic data for network monitoring and troubleshooting
- Real-time traffic data for subscriber usage & QoE monitoring
- 5-15 sec. sample ratio
- Variety of network and subscriber usage and QoE attributes and metrics

Real-time Analytics & Data-Source



All Network Aspects

- Usage Statistics
- QoE Network Metrics
- Top Applications
-

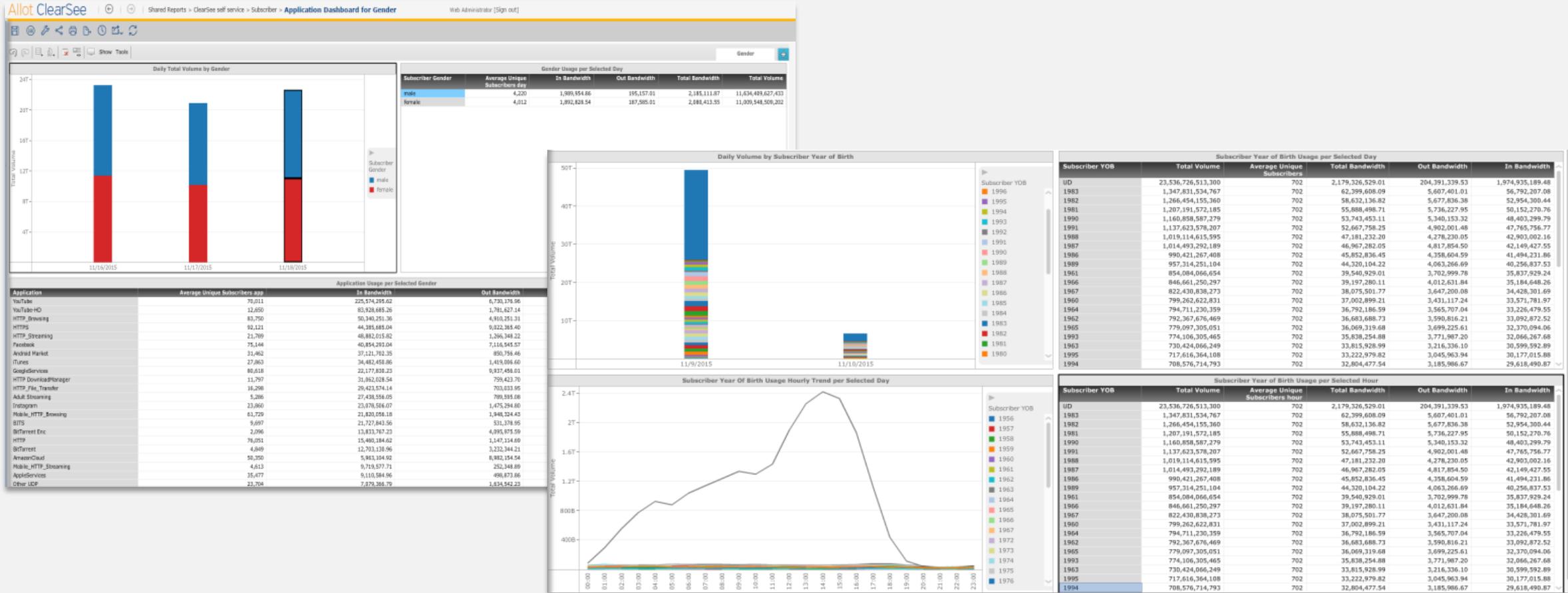
Different Views

- Per Network
- Per Device
- Per Plan
- Per Subscriber
- Per Service

Capabilities: External DS Enrichment (Combining Demographics w/Data Usage)



App. Usage Statistics by Gender, by Year of Birth, and by Location



Capabilities: Insights Engine



Outlier

The current value is greater than $\pm 1.5 X$ standard deviations from the moving average for 30 day/hours/5 min units. The '1.5' is the default and can be configurable to adjust the frequency of the alert.

Shift

(Above/Below) – Last 7 consecutive values all fall above or below the 30 day/hours/5 mins moving average.
The number '7' is the default and can be changed.

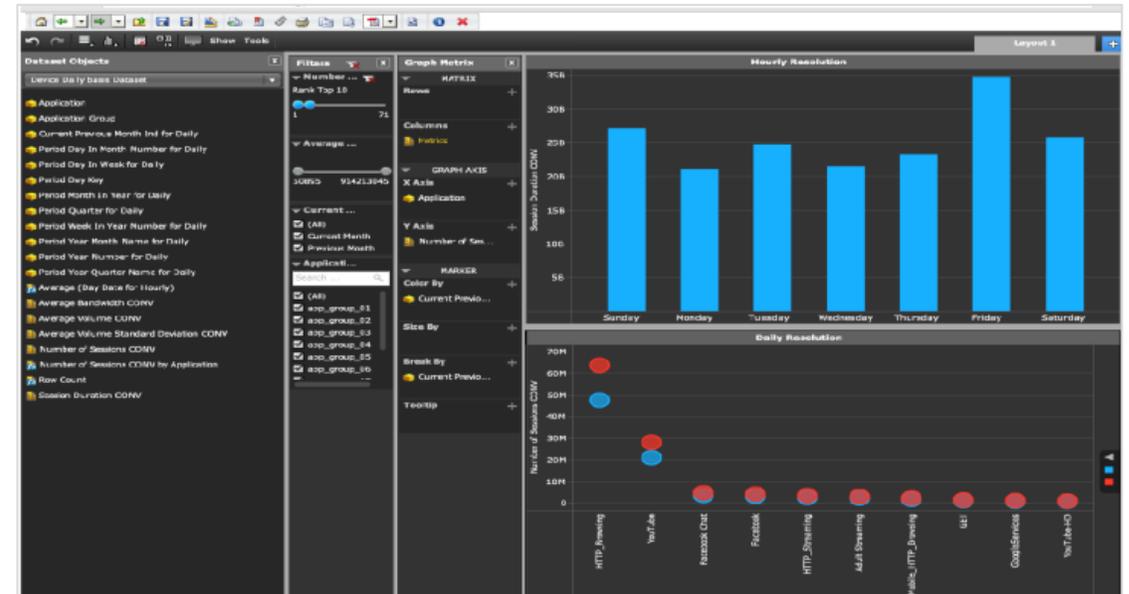
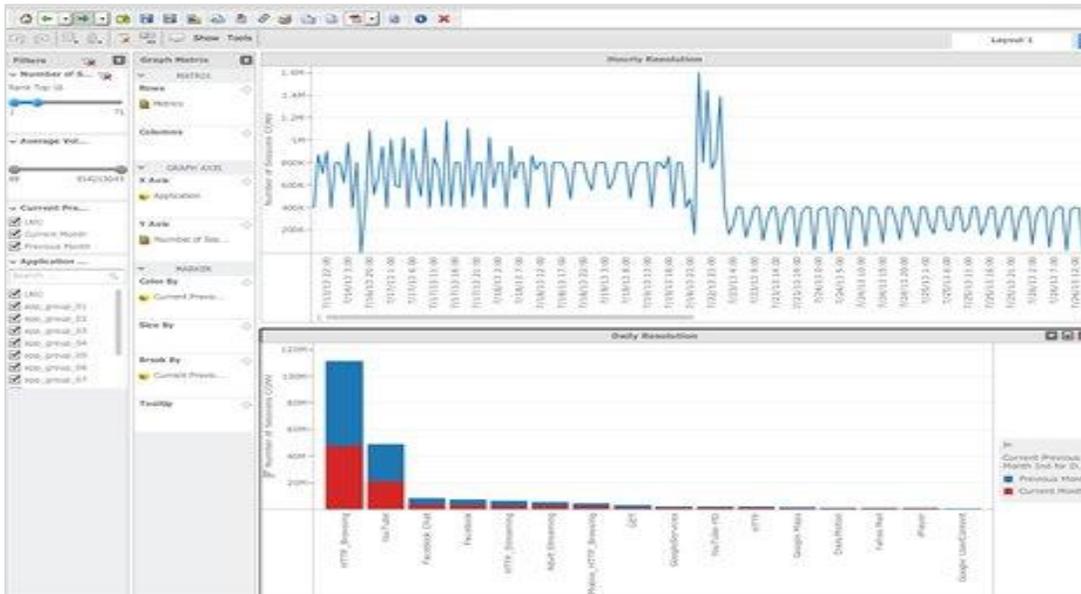
Trend

All last 7 consecutive values move continuously upward or downward.
The number '7' is the default and can be changed

Threshold

(Max/Min) - Current value is above/below the maximum/minimum threshold value (threshold can calculated for the last X periods).

Capabilities: Self Service Custom Reports



Custom Analysis

- Platform for any project
- Ad-hoc custom reports and dashboards
- Variety of dimensions and measurements

Easy and Intuitive

- Drag and Drop interface
- Result is just a few clicks away

Report Community

- More than 2,000 reports and dashboards

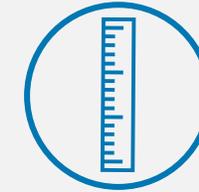


Capabilities in Action: Layered QoE Approach



Layer 1 – Network QoE

- ✓ Based on the Conversation Data Bucket
- ✓ Attributes: Packet-Loss/Retransmission, Round-Trip-Time



Metrics



Dashboards



SS BI

Layer 2 – Browsing QoE

- ✓ Based on the HDR data bucket
- ✓ Attributes: Response Time, Download Time, Page Errors



Metrics



Dashboards



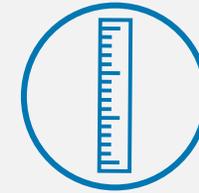
SS BI

Layer 3 – Video Streaming QoE

- ✓ Based on the VDR data bucket

First deployments supporting Encrypted Video QoE

- ✓ Note: Non-encrypted video only



Metrics



Dashboards



SS BI

Traffic Management using SmartTraffic QoE



Traffic Management using Allot SmartTraffic QoE



Value Proposition

Our superior classification enables traffic shaping to:

- Reduce congestion
 - Save at least 10% of access bandwidth costs
 - Defer capacity expansion by 1-2 years
- Deliver high QoS and increase end-user satisfaction.

Key Benefits / Features

- Superior DPI Traffic Classification based on Dynamic Actionable Recognition Technology (DART) that employs multiple inspection methods - such as:
 - Pattern & heuristic analysis
 - Peer & machine learning
 - Traffic identification of Layer-7 applications, Users & devices, access and video and contextual attributes.
- Policy driven QoS based on above classification
- QoE-based Congestion Management
- Application steering

Key Traffic Management Messages



The market looks for smart cost reduction solutions



Access/Backhaul costs are high even in developed countries



However, QoE level cannot be compromised



Allot's granular Visibility & Control provides quick ROI



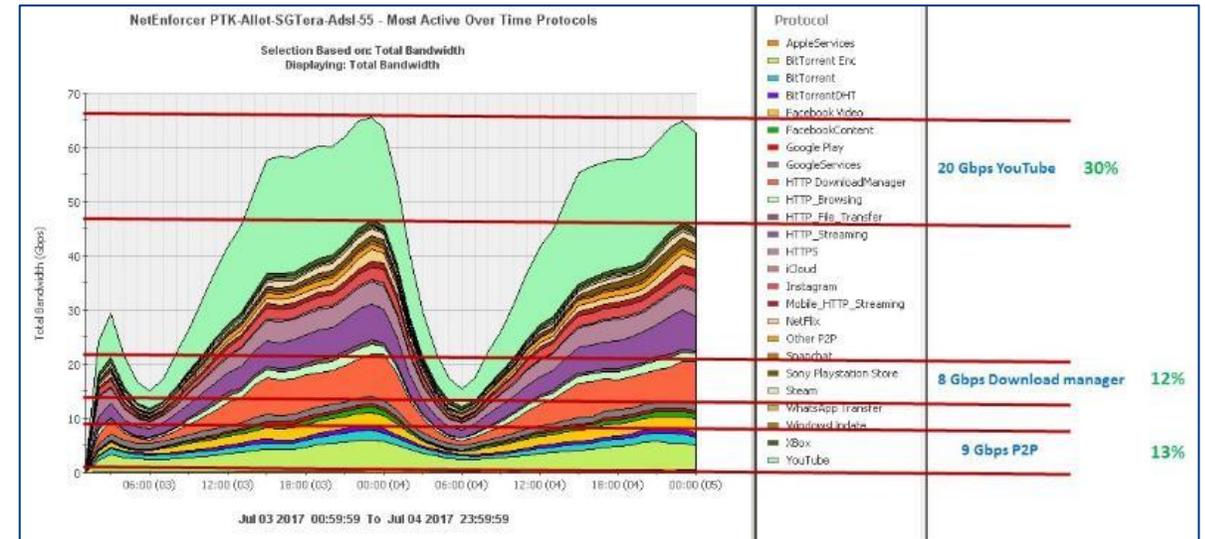
Allot assures QoE level & visibility during smart control

Saving BW whilst Maintaining QoE



Operator's Request:

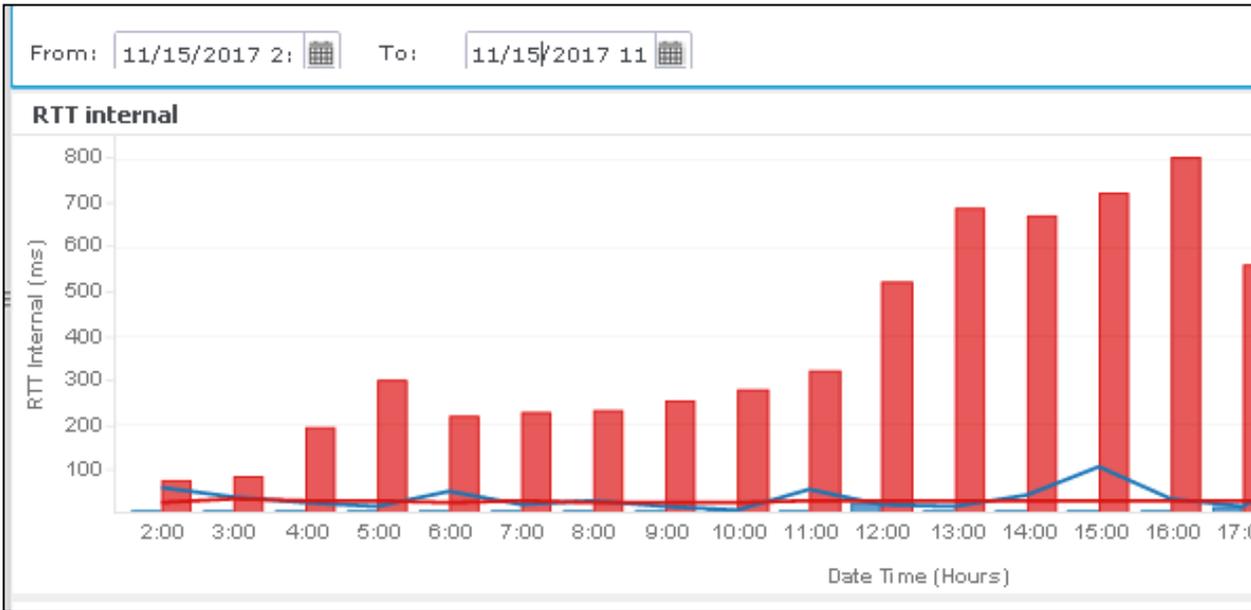
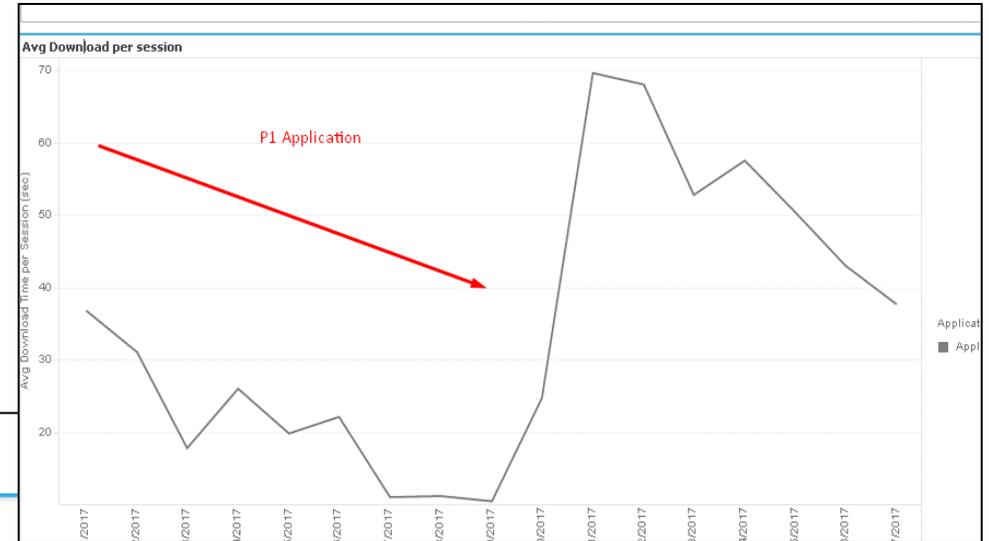
- Save 10%-20% in peak hours
- Maintain high QoE
- “Touch” Video Traffic as last resort
- Solution is deployed!
- ROI – 9-12 months



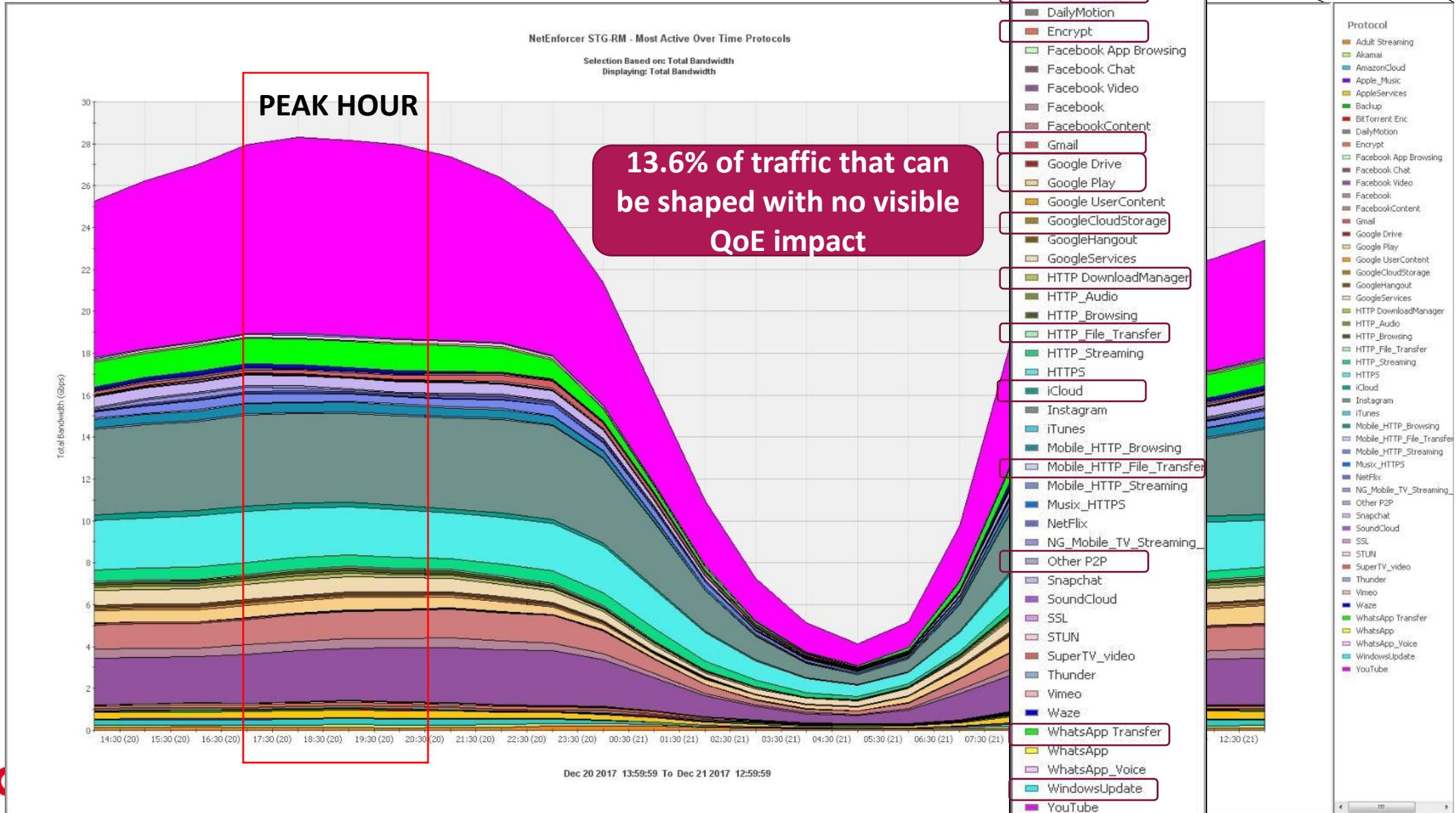
Partner



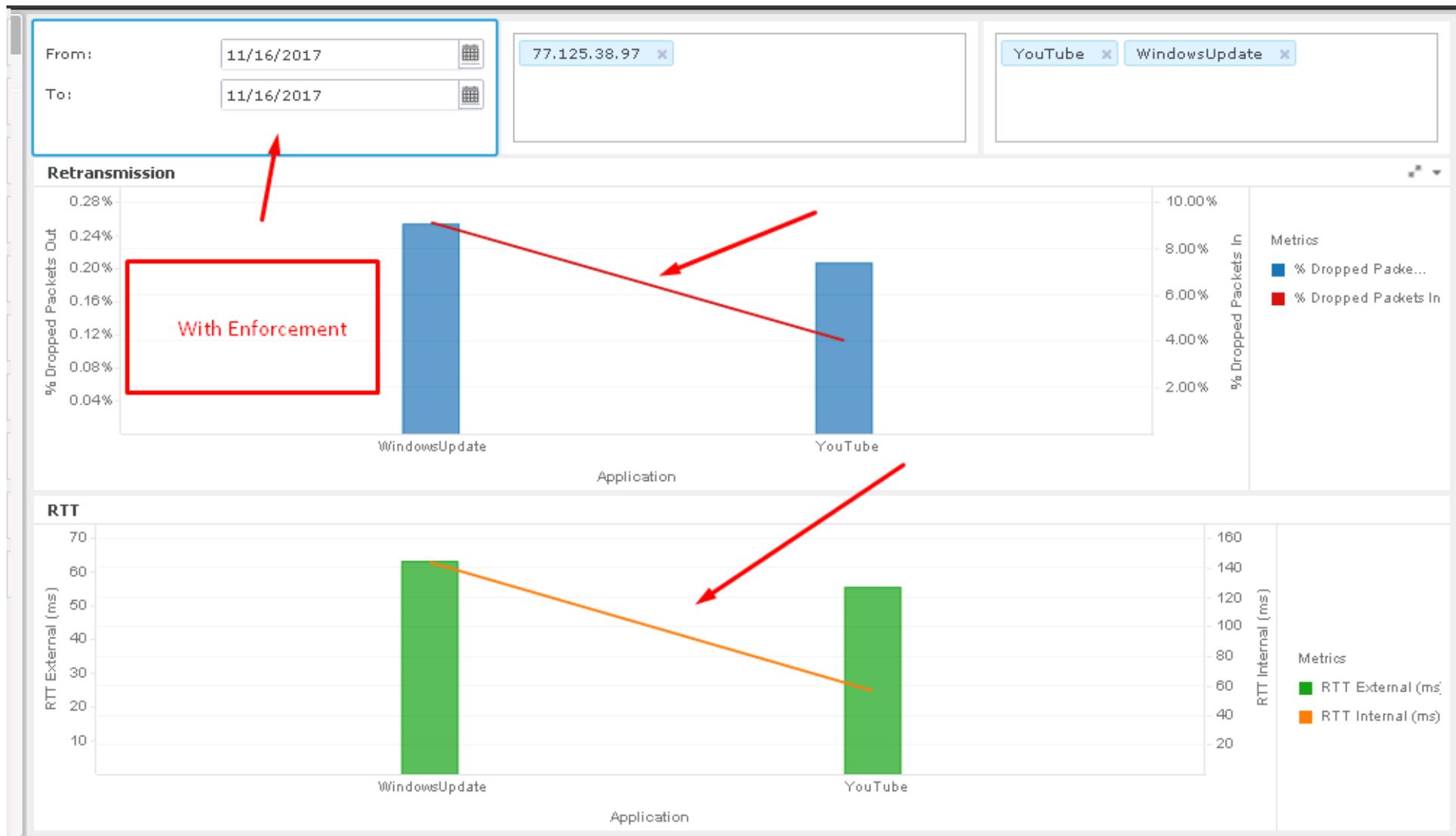
Maintaining QoE while Shaping



What Traffic Should we Impact First?



Maintaining QoE while Shaping



Managing (Encrypted) ABR video



The Problem

With ABR streaming a BW hungry client chokes the network.



The Goal

Give control to the operator. QoE Vs. BW Fair Share



The Method

- Operator Network Control Bit Rate Adaptation
- Select desired bitrate level: video and QoE aware
- Very efficient and scalable
- Works for HTTPS (YouTube) and DRM (NetFlix)
- Supports all ABR protocols



		Delivered Rate							
		235	375	560	750	1050	1750	2350	3000
Uncontrolled Rate	235	0%							
	375	37%	0%						
	560	58%	33%	0%					
	750	69%	50%	25%	0%				
	1050	78%	64%	47%	29%	0%			
	1750	87%	79%	68%	57%	40%	0%		
	2350	90%	84%	76%	68%	55%	26%	0%	
	3000	92%	88%	81%	75%	65%	42%	22%	0%

Extend Infrastructure Capacity with Congestion Management



VOO

Belgium

CABLE OPERATOR

VOO is the leading provider of broadband cable services in Belgium. The company has been one of the fastest growing service providers in Europe, currently serving 0.4 million subscribers.

CHALLENGE

Reduce network congestion without frequent investment in additional infrastructure.

SOLUTION

Deploy Allot Service Gateway Tera with CMTS-aware traffic visibility to identify and automatically alleviate access congestion; and with DDoS Mitigation to detect and surgically block flooding attacks.

BENEFITS

- Reduce infrastructure capex/opex
- Assure service uptime
- Consistent QoE
- Enhance customer satisfaction

“By keeping DDoS traffic off the network and managing CMTS congestion precisely where it occurs, we have been able to delay infrastructure expansion by 2 years and to save millions.”

Tamara Leemans, VOO CTO

Dynamic Differentiation of Services in Fixed Wireless Access



Linkem

Italy

**FIX WIRELESS
OPERATOR**

A leading wireless broadband provider in European market providing radio access for voice and internet via wireless modems installed in each subscriber's home in areas that lack fixed infrastructure.

CHALLENGE

Differentiate its offering by delivering faster speed, and enhanced QoE while controlling the involved infrastructure costs.

SOLUTION

Allot Service Gateway Tera accurately identified different app traffic and dynamically created bearers per each app with different QoE Class Identifier carried over LTE ensuring good QoE for each app.

BENEFITS

- Optimized network resources
- Discrete QoE per app
- Enhanced QoE for end users



Simplifying Your Core Network

- Traffic diversion to VAS is usually done by PBR or expensive LB
- The diversion is done based on L4
- Many times the diversion is not subscriber aware

WHY DOES IT MATTER?

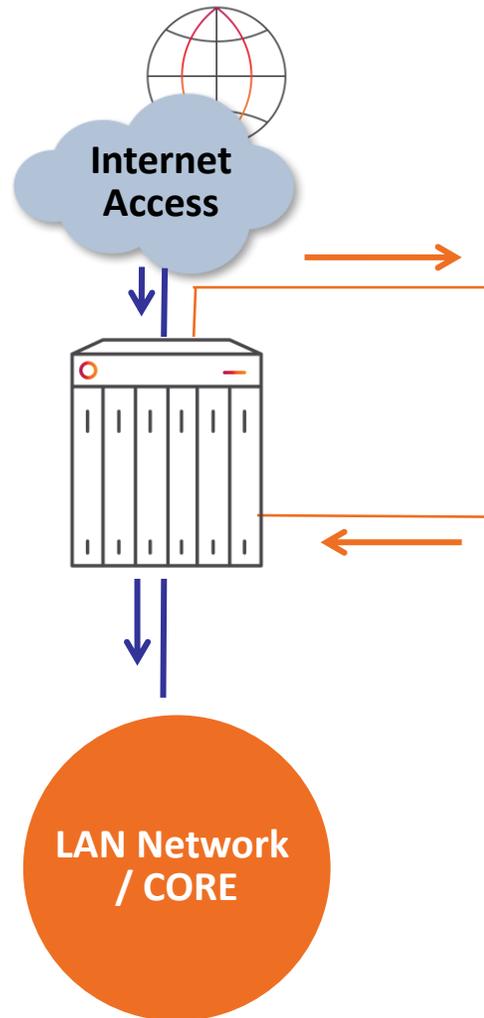
Allot steering is performed on L7, thus reducing VAS capacity

Easy GUI with no difficult PBR maintenance

Steering can be performed on Allot SG backplane

Subscriber and app aware are inherent to roll out differentiated services

Traffic Chained/Non-chained Steering



Service Enablement

- Video Optimization
- TCP Optimization
- **Contect** Inspection
- Caching
- Any other third-party device...

Common Use Case with Allot

- Proactive L7 first packet steering (PDPI)
- Application Load Balance
- Service Chaining
- Transparent and Explicit Proxy

Improve Customer Satisfaction and QoE through a Multiservice Platform



Telefonica

Telefonica
Multinational
MOBILE OPERATOR

Telefonica is a Spanish multinational broadband and telecommunications provider with worldwide operations. Operating globally, it is one of the largest telephone operators and mobile network providers in the world.

CHALLENGE

- Differentiating service by delivery of security & privacy.
- Introduction of news VASs - Parental Control, Ad blocking.
- Customer satisfaction by delivering excellent video QoE through traffic optimization.

SOLUTION

Allot L7 traffic steering and service orchestration allowed to accurately steer relevant traffic to security services and video traffic for optimization to improve QoE.

BENEFITS

- Service differentiation
- Increase ARPU
- Customer trust and satisfaction
- Reduced OpEx

Cutting Costs

BGP AS Awareness

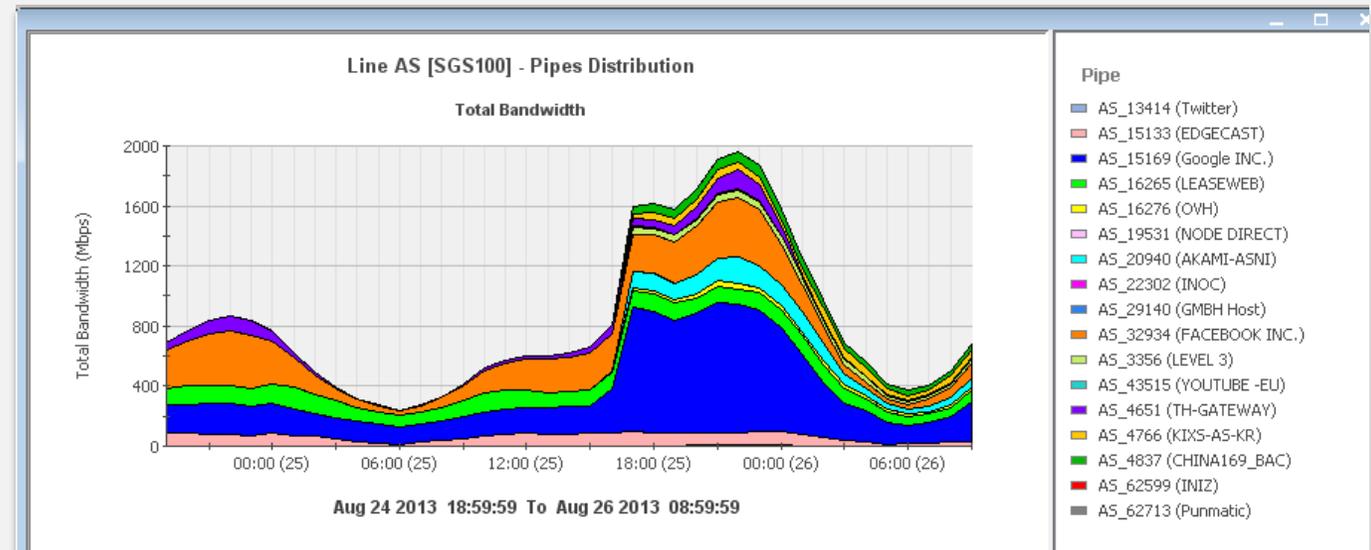


Real-Time Usage measurement

- Application usage per AS
- Application QoS per AS

BGP Optimization

- Real-Time application-based policy enforcement per AS
- Control transport costs while improving application QoE



Taiwan Mobile





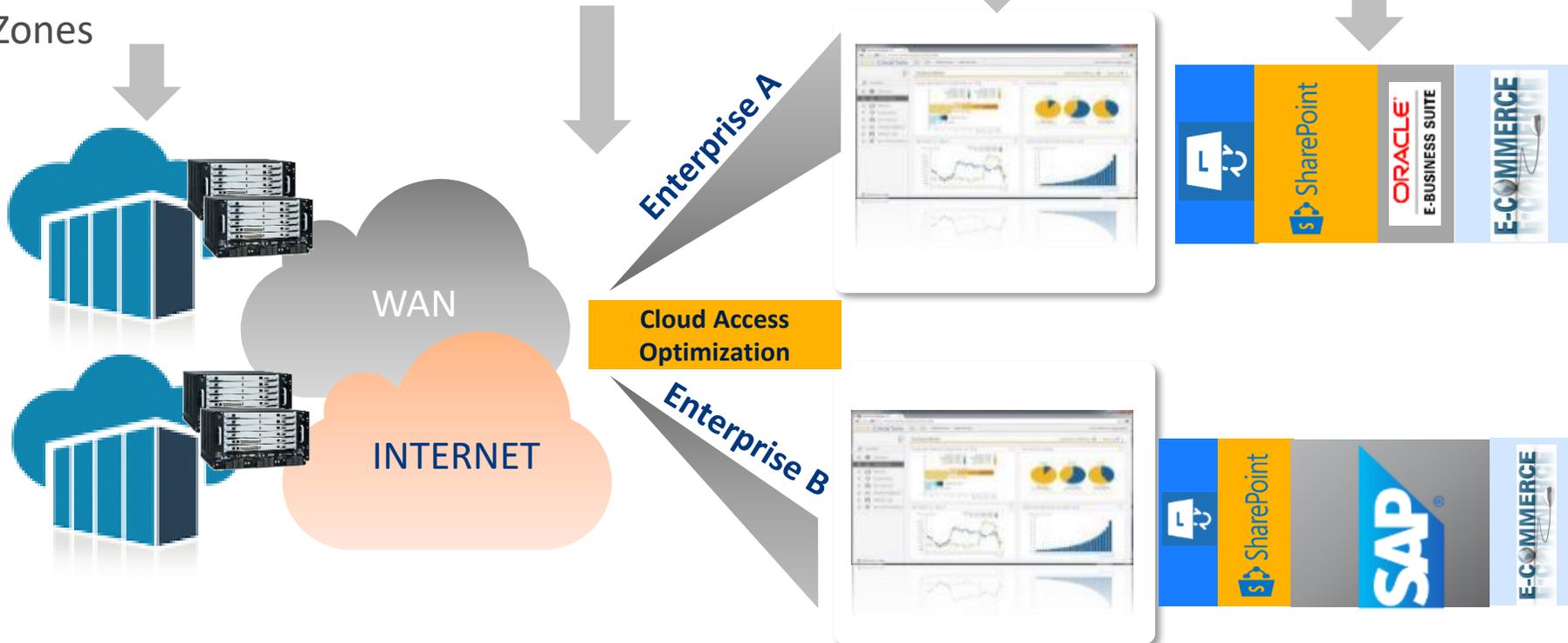
Self Visibility/Control Business Customers

SLA report per Enterprise Customer

Geo-redundant DataCenter with 2x SG each to Offer 2 Different Maintenance Zones

BW Shaping of DataCenter Access per Customer

QoS for Business Critical Applications



Allot @ Swisscom

- Customized SOAP integration with portal
- New SOAP layer entered GA product

SMB customers can change their DataCenter Access via Self care-Portal (Bandwidth, IP clients)

Policy & Charging Control with SmartPCC



Policy & Charging Control with SmartPCC



Value Proposition

- Enables increased ARPU through rapid rollout of targeted, customer-segmented service bundles.
- Assures optimal performance of applications and services to ensure customer satisfaction – helping to reduce costly churn.

Key Benefits / Features

- Rapidly introduce new services and enforce QoS and charging policy across any mix of access technologies on any set of network and subscriber conditions.
- Accurately classifies and meters data usage per application, user, device, etc. and delivers these granular data records in real time to the charging function.

Mobile Network Charging Trends

- **All-You-Can-Eat monthly plans**
 - Sometimes differentiated with bundling application package such as Netflix etc.
 - Reliance Jio, T-Mobile One, Verizon Unlimited, Vodafone RED, 3 Monthly plans
- **Usage-based plans with quota of Simple Pay-As-You-Go (PAYG)**
 - plans along with application-based bundles and packs to optimize expense
 - Tigo Operators, Viettel, Globe
- **Zero rate plans (Social, IM)**
- **Simple SIM-based pre-paid plans with Top-Ups**
- **Net Neutrality revoked in the US**

Combo Mobile BroadBand Plans			
	Combo Mobile BroadBand 2	Combo Mobile BroadBand 5	Combo Mobile BroadBand 10
Monthly Subscription	\$19. ⁹⁰	\$29. ⁹⁰	\$49. ⁹⁰
Local Data	2GB	5GB	10GB
Single WiFi	2GB (Unlimited usage till 30 September 2017)		
Typical Download Speed	4G (Up to 300Mbps); 20 – 140Mbps for selected mobile devices		
Contract Term	3 months or 24 months		



MOBILE ESSENTIALS
UNLIMITED + STREAMING + HBO®

\$70/MO.

Price after \$25 credit and \$5 AutoPay & paperless bill discount (excludes credit cards). Pay \$100/mo. until credits start w/in 3 bills. Pricing subject to change. See Details.

Dial *450#

	Bing! Daily	Bing! Weekend	Bing! Weekly	Bing! Gold
Free access	YouTube	YouTube	YouTube	YouTube
Tigo to Tigo (min)	250	500	500	1,000
Other Networks (min)	15	30	30	70
IDD (min)		5	5	10
SMS	20	50	30	50
Date (mb)	75	200	200	300
Price/GH¢	3	3.99	7	20
Validity	1 day	Sat & Sun	7 days	30 days

REQUIRES
AT&T UNLIMITED CHOICE™

數據服務

4G隨意用加強版

- 攜號轉台享5GB數據量,最高下載速度為21Mbps
- 其後128kbps
- 本地話音每月3000分鐘

月費 \$108

Keyword
GOALLNET70

- ✓ 115 minutes calls to Globe/TM
- ✓ Unli texts to Globe/TM
- ✓ 5 MB for Facebook
- ✓ Valid for 3 days
- ✓ P70 only

Create via GoSAKTO

數據服務

4G隨意用

- 首2GB最高下載速度為384kbps
- 其後128kbps
- 本地話音每月2000分鐘

月費 \$88

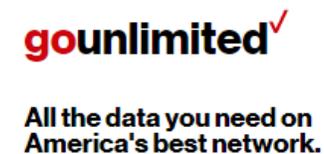
Unlimited 55+ 2 lines \$60/mo.

Unlimited for a generation of rule breakers.

55yr old+ get 2 unlimited lines on America's best unlimited network for \$60/mo with AutoPay. With taxes and fees included, the price you see is the price you pay.

Get the details

On all T-Mobile plans, current position top 3% of users >90 GB/mo. 1 may not be record speeds. Varies typically between 400-4800. See full terms.





Mobile Network Charging Challenges



- Supporting All-You-Can-Eat plans with protection against network abusers or heavy users
- Growth of data needs impacts overall user-experience during busy hour leading to subscriber churns
- ARPU decreasing over time. Require smart solutions to manage the CAPEX investment to match customer usage and expectations
- NEPs are rigid with rolling out ABC (Apps detection, complex policing, integration) – exposed to high revenue leakage

SmartPCC Solutions for Policy & Charging Control



Fair usage management

Control bandwidth usage during busy hours for users crossing a threshold of usage

Ex. Any user using more than 1 GB per day is throttled during busy hour

Any user to be throttled to reduced speed after X Gb of usage per month

Busy hour traffic management

Use dynamic allocation of available bandwidth to different types of application groups to improve perceptible user experience

Ex. Reduce usage of P2P/application downloads during busy hour

Congestion detection and management

Track dynamic congestion per cell based on usage (RCAF) and observed QoE - apply selective traffic optimization to alleviate congestion

Ex. Reduce bandwidth usage per subscriber for non-transactions applications only for congested cells

Application Bundles/Zero Rating

Use Application Detection and Charging to differentiate

*Ex. Provide Streaming Applications Usage using a different bundle add-on
Provide Free Facebook Usage*

Tethering

Detect Tethering Usage and provide control

Ex. Limited QoS of tethering usage and/or promote add-ons to promote tethering usage without any restriction



API to Facebook for 100% accuracy



Facebook Traffic Control Settings

Credentials

FB API URL: **filled automatically**

Vendor ID:

Carrier ID:

Password:

Based on operator agreement with Facebook

Periodic Revision Updates

ON OFF **Turn Facebook updates on/off**

Report Deployment Revision to Facebook

Element Name:

Update deployment revision to Facebook

Categories

Name	Revision ID	Timestamp

Add categories

Buttons: Add..., Check..., Remove, OK, Cancel

Add Facebook Category

Select a category to add:

Category Name:

Dropdown menu options: iorg, whatsapp, instagram

Buttons: OK, Cancel

Icons: Facebook, WhatsApp, Instagram

iorg has the following packages:

- *Free Basics*: visit basic websites for free through the Free Basics mobile app and website
- *Free Facebook*: access Facebook without photos or videos for free, or pay for data
- *Facebook special*: access Facebook without photos or videos for free, or purchase a data pack at a special, reduced price

Name	Description	Scope	Date Modified
Any		Global	12/30/04 2:00 AM
Any IPv4	All IPv4 hosts	Global	4/10/12 1:01 PM
Any IPv6	All IPv6 hosts	Global	4/10/12 1:07 PM
Block Service Plan	Service Plan Subscribers Host Group	Global	2/28/07 2:00 AM
Default Service Plan	Service Plan Subscribers Host Group	Global	12/8/07 2:00 AM
fbtc_instagram_special_ipv4	Facebook Traffic Control - Instagram special ipv4	Global	6/1/17 8:51 AM
fbtc_instagram_special_ipv6	Facebook Traffic Control - Instagram special ipv6	Global	6/1/17 8:51 AM
fbtc_iorg_free_ipv4	Facebook Traffic Control - iorg free ipv4	Global	6/1/17 8:46 AM
fbtc_iorg_free_ipv6	Facebook Traffic Control - iorg free ipv6	Global	6/1/17 8:46 AM
fbtc_iorg_special_ipv4	Facebook Traffic Control - iorg special ipv4	Global	6/1/17 8:46 AM
fbtc_iorg_special_ipv6	Facebook Traffic Control - iorg special ipv6	Global	6/1/17 8:46 AM
fbtc_whatsapp_free_ipv4	Facebook Traffic Control - whatsapp free ipv4	Global	6/1/17 9:15 AM
fbtc_whatsapp_free_ipv6	Facebook Traffic Control - whatsapp free ipv6	Global	6/1/17 9:15 AM
Unlimited Service Plan	Service Plan Subscribers Host Group	Global	1/1/07 2:00 AM

Once enabled, host catalogs will be created automatically



The "Perfect Package" brings MM USD for Pelephone



- A Subscriber can pay additional 2.5 USD from basic package and get:
- Snapchat, Waze, Facebook, Whatsapp, and Instagram for free
- 4 categories of most popular apps in Israel (Shopping, News, Economics, and Sports)
- Already 300 K Subscribers opted in!

1. מקבלים גלישה ללא הגבלה באפליקציות מובילות

כולל דקות SMS-1



2. בוחרים חבילת אפליקציות שאתם אוהבים (כ.ן. גם ללא הגבלה)

חבילת ספורט חבילת כלכלה חבילת חדשות חבילת שופינג

חבילת ספורט	חבילת כלכלה	חבילת חדשות	חבילת שופינג
 ONE 5 ספורט	 גלובס ביזפורטל	 ישראל היום Ynet	 aliexpress ebay
 1 ספורט scores365	 דה מרקר כלכליסט	 הארץ מעריב	 סנט yad2

3. נהנים מנפח גלישה נוסף לכל שימוש אחר, רק תבחרו כמה:

רקב- 59.9 לחודש
4 שו"ה המזהה בציורף מני 5000

26GB 23GB 20GB



Securing Revenues with Fraud Prevention & Analytics



C&W

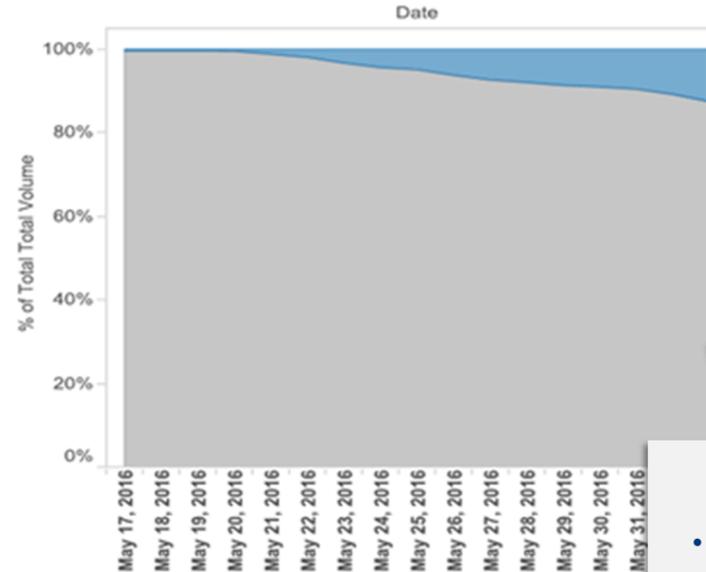
Caribbean

CABLE & MOBILE
SERVICE PROVIDER

More than 10% of the revenues were saved by fraud prevention on the mobile business

THE CHALLENGE

- Decline in fix line business (competition, churn)
- Revenue leakage in charging frauds
- Lack of visibility with



BENEFITS

- Stop revenue leakage
- Accurate visibility of customer usage
- Effective engagement

THE SOLUTION

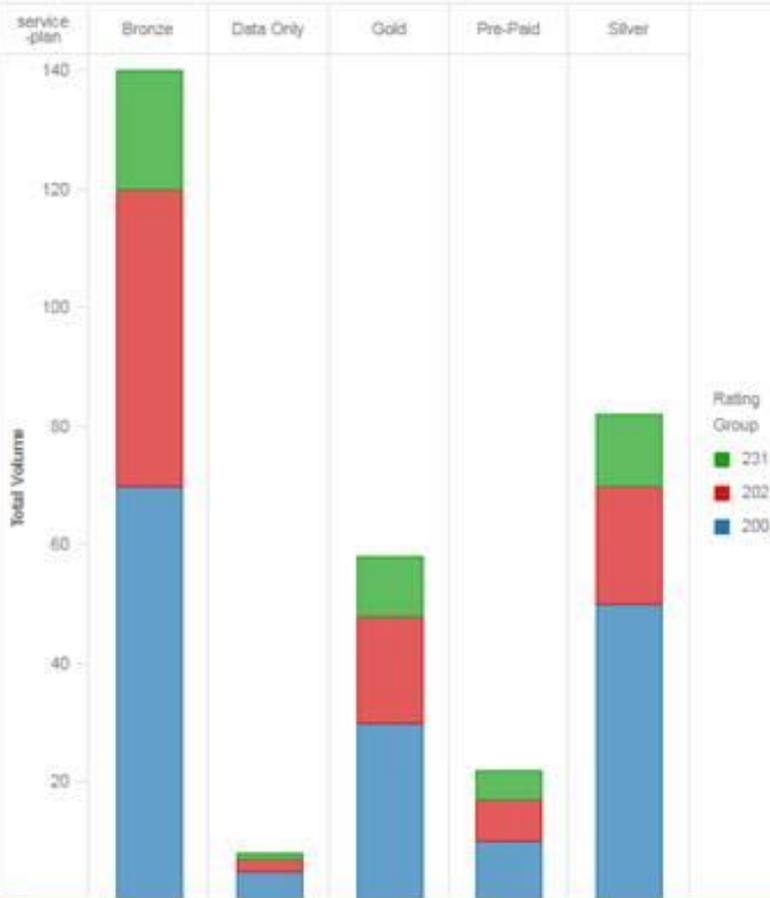
- Allot Data Source helped gain granular visibility into effective, relevant customer engagement
- Allot ClearSee Analytics helped pinpoint reasons for
- Allot SmartPCC eliminated charging fraud (domain fo

- DNS traffic grows to 12.5% of total volume (1.2 TB per day) in just two weeks, but total volume stays the same
- Top 20 DNS users have DNS connections lasting longer than expected (>10min)

Revenue Assurance



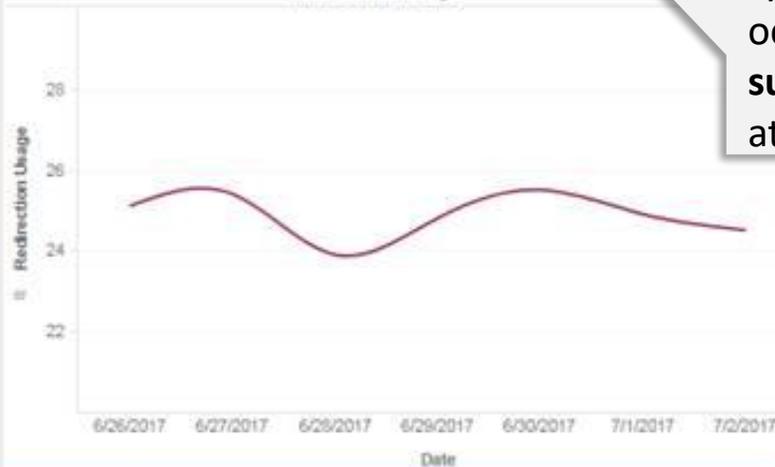
Service Plan Rating Distribution



Rating Groups Distribution

Rating Group	Total Volume	Rating-Group Percentage
200	165	53.23%
202	97	31.29%
231	48	15.48%

Redirection Usage



Revenue Assurance Insight Center, is a powerful solution that detects **anomalies** and insures the integrity of the charging solution in ISPs. The solution is able to notify upon detection of suspected traffic, by **analyzing trends** and behaviors of portal traffic, zero-rated traffic, fraudulent protocols, and additional information that is collected by the system. The insights are provided for events that occur along the network **or by a particular subscriber**, providing rapid response to fraud attempts.

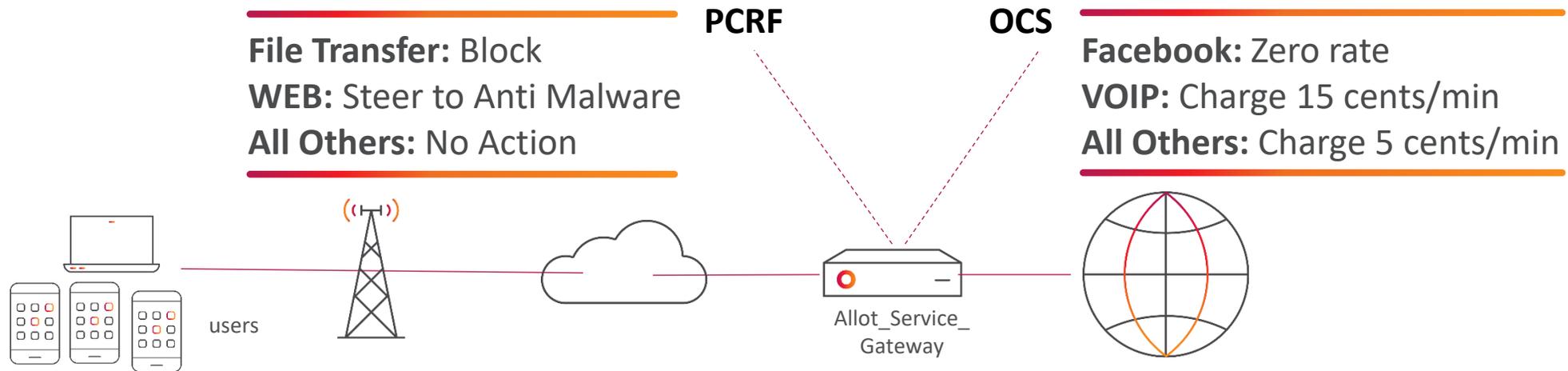
Insight Center

Date	Severity	Insight
6/26/2017	Critical	An incrementing trend was found for Rating-Group 202 during the last 4 weeks.
6/28/2017	Warning	0.8% of the total subscriber's usage, was not redirected or reported.
7/1/2017	Critical	2.9% % of the total subscriber's usage, was not redirected or reported.

Anticipate 10%-15% Revenue leakage prevention



Architecture for Delivering Innovative Service Plans



Metering & Charging per:

- Application
- User/users

Integrating Billing Systems

- Online charging – Real time billing (1 sec granularity)
- Offline charging

Delivering Application Based Charging



Allot TDF Data Plans:

- Pre-paid
- Post-paid

Allot TDF Trigger Actions:

- Block
- Throttle
- Portal Redirect



HotSpotting



Zero Rating



Roaming
Data



Congestion
Avoidance



Parental
Controls and
Anti-Malware

Additional Use Cases:

- Tiered Data Rates
- Quota
- Premium Content
- Heavy User Control
- Application Control

Increase ARPU & Customer Loyalty

Allot
Know How

- Global Experience
- Fast Time to Market (<4 mos)


Proven Success

Working with Partners in the PCC domain



SmartPCC Solution partners



Technology partners



Regulatory Compliance with SmartRegulator



Allot's SmartRegulator offering for Regulatory Compliance



NETWORK
INTELLIGENCE

DATA RETENTION

CONTENT FILTERING

CYBER SECURITY



SmartRegulator: Regulatory Compliance



Value Proposition

The Allot SmartRegulator solution is specifically designed to enable CSPs to meet national law enforcement and/or homeland security authority requirements – cost effectively.

It is a flexible, powerful, and scalable solution that resolves current and future threats through adaptive machine learning of malicious behavior with a dynamically expansion in threat identification.

Policies are centrally deployed across the entire network at a national scale and steering/chaining capabilities easily integrate 3rd party products for enhanced solutions.

Key Benefits/Features

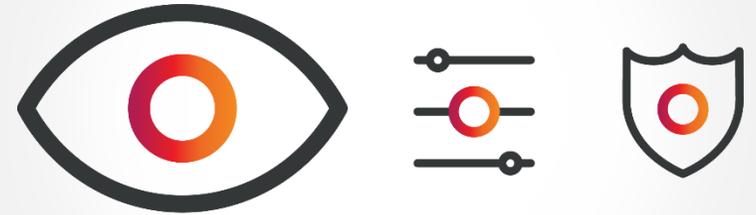
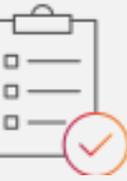
Allot offers a unique, unified solution based on massively scalable, in-line protection that inspects every packet and delivers the following key benefits:

- Granular, big data visibility into network, user and application behavior
- Blocking illegal content, such as pornography, violence, drugs, child abuse, fake and untruthful content and illegal applications
- Unlimited retention of detailed usage records
- Protection of network infrastructure against DDoS attacks



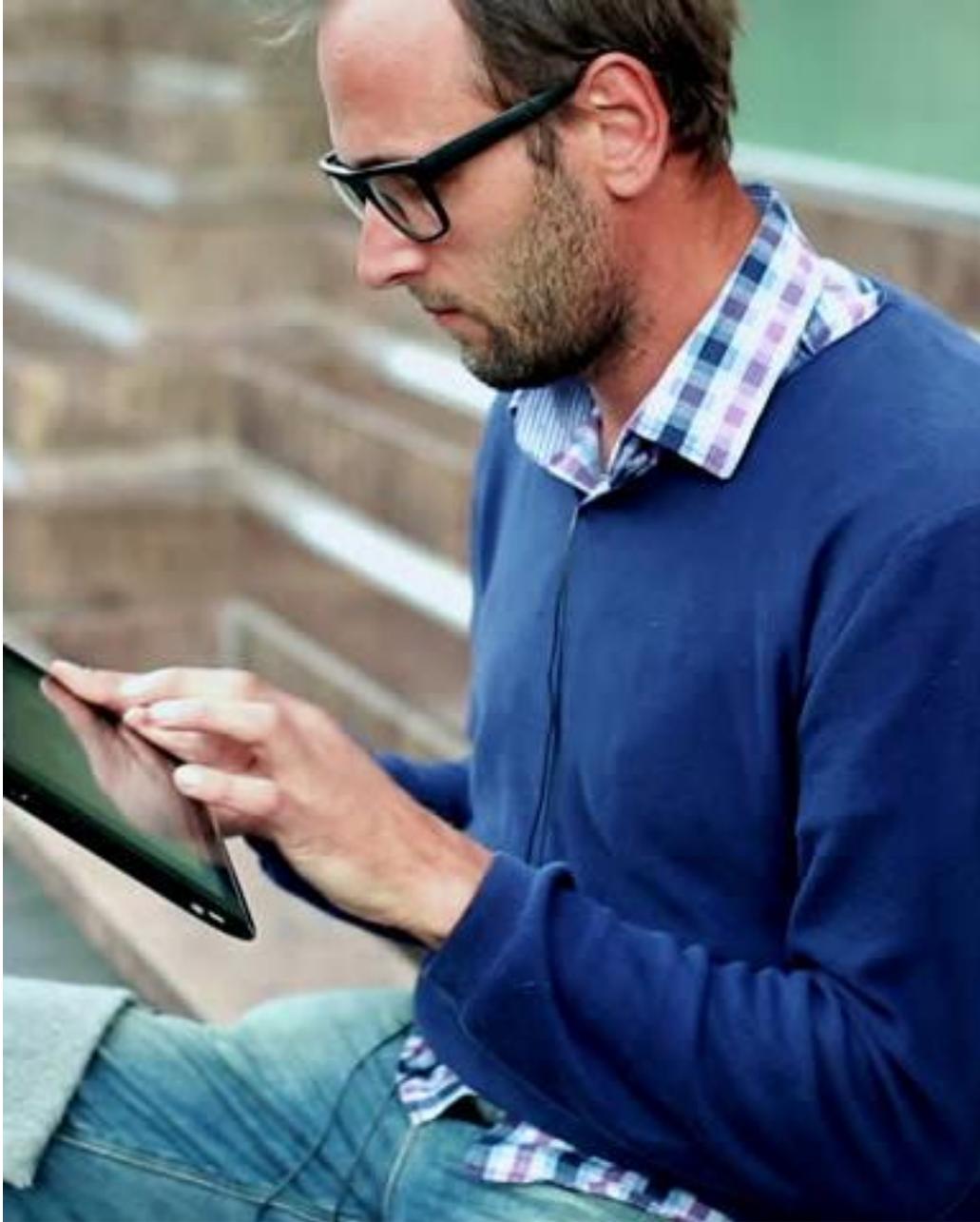
Regulatory Compliance: Visibility

- DPI traffic awareness overcoming encryption
- Automatic classification of application, user, session, device, location, content, and type of interest (browsing category)
- Thousands of applications and protocols expandable through frequent updates
- Detailed extraction of Web traffic information
- Recording and storing of online usage records for data retention projects
- Unified GUI for reporting and analytics



See.





Data Retention/Web Activity Log (Allot ClearSee)



- Per subscriber detailed web activity log
 - Which **URLs** were accessed?
 - Which **applications**?
 - For **how long**?
 - On **which device**?
- Big-data scalable for long data retention
- Built-in high availability
- Simple interface for retrieving user online web log

Regulatory Compliance: CONTENT FILTERING

- Illegal URL filtering
- Restricting access to app
- Parental controls – category-based blocking of inappropriate content
- Tethering control



Control.

App Restriction



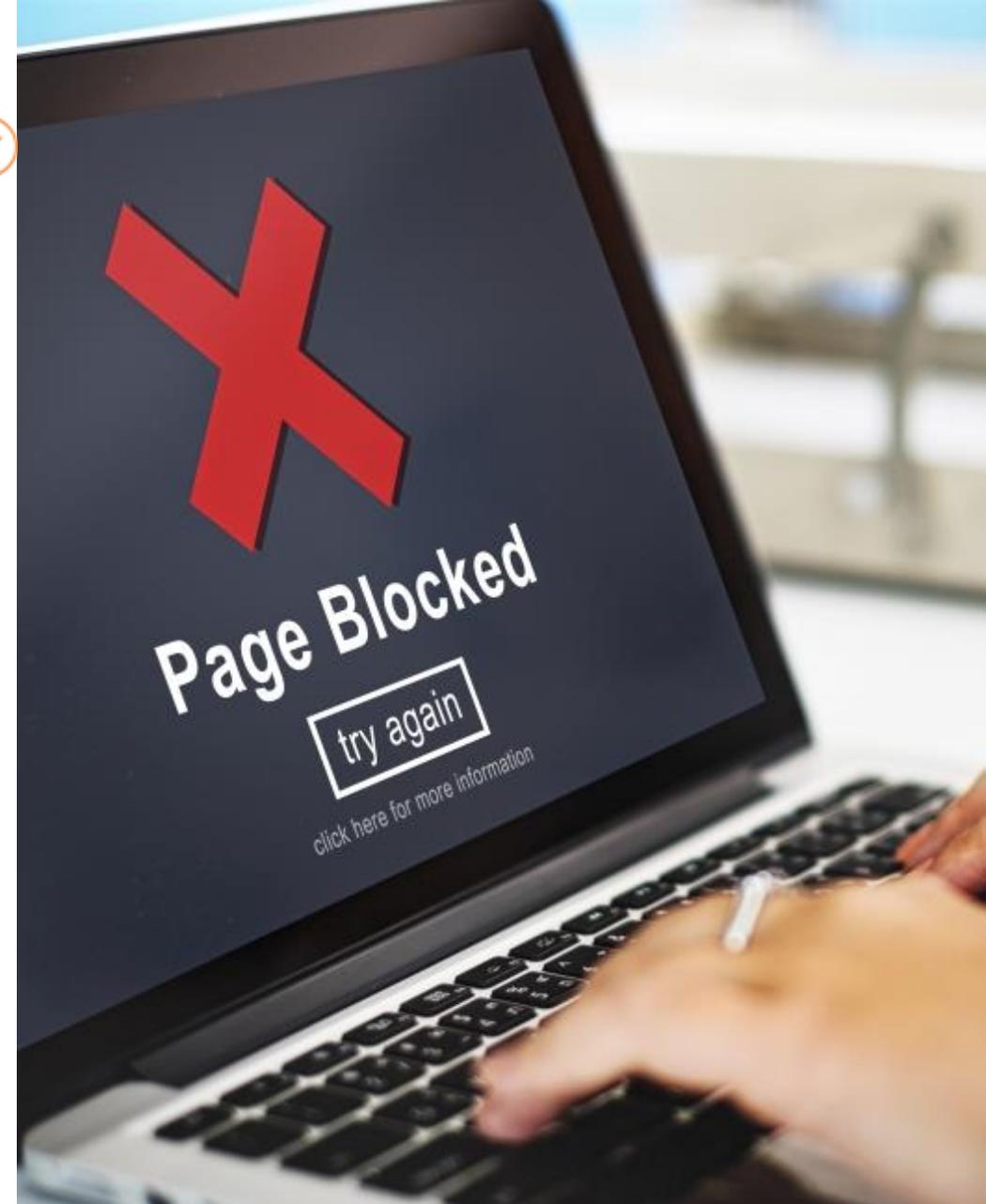
- High precision block (100%) of social network services, VPN, and anonymity
- Out-of-the-box library of thousands of applications and protocols expandable through timely updates or self-service interface
- Disrupt (rate limit) instead of blocking
- Device tethering awareness



URL Filtering (Service Gateway)

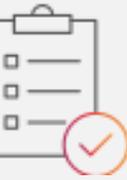


- URL filtering using IWF blacklist
- Import blacklist policies from a national regulatory organization
- Automatic distribution and activation
- Encryption agnostic
- Varied content management actions; block, redirect, and disrupt (rate-limit)



Regulatory Compliance: Cyber Security

- Comprehensive threat intelligence
- Blocking of Dark Web access tools
- Protecting infrastructure against DDoS attacks
- IoT botnet activity monitoring and containment



Secure.

Restricting access to Dark Web



- Blocking access to a variety of Dark Web access tools, anonymity, and VPN services
- Machine learning technology
- High precision DPI identification (100%) sustainable over time for a variety of services
 - TOR
 - Psiphon
 - Ultrasurf
 - Spotflux
 - Yandex Turbo
 - Opera
 - ...





Anti-DDoS (Allot DDoS Secure)



- Scalable inline volumetric anti-DDoS
- Rapid mitigation (10-30 seconds)
- High precision - all traffic is scanned
- Takes care of both inbound and outbound attacks
- Network Behavior Anomaly Detection (NBAD) technology
- Rate limiting
- BGP Black holing
- Asymmetry support
- Centralized architecture
- Detailed threat intelligence on attackers and their targets in the network





Anti-Botnet (Allot DDoS Secure)



- Anti-botnet behavior-based detection and isolation
- Variety of actions: Block, redirect, report
- Host Behavior Anomaly Detection (HBAD) technology
- Out-of-the-box behavioral patterns
 - Address-scan
 - Port-scan
 - Flow-bomb
 - SMTP-bomb
 - ...



THANK
YOU