Allot at a Glance

Public company (NASDAQ, TASE: ALLT)

- $96.3M revenues in 2016
- 10 employee in Italy, LAB, Demo Unit
- $123.3M in cash

- 20Y deployment experience
- 100+ countries
- 1000+ CSP customers
- 24x7 follow-the-sun support
- Powering 5 of top 10 mobile CSPs
- Serving 1B subscribers worldwide
- #1 provider of SECaaS in Europe
- Protecting >15M subscribers
Allot’s Solution Domains

- Visibility & Analytics
- Policy Control
- Security
  - Network Security
  - Web Security

Allot Service Gateway

Allot NetEnforcer
QoE Visibility
DART: Dynamic Recognition

Dynamic Actionable Recognition Technology accurately identifies hundreds of protocols/variants

Layer 7 Switches
Switches & Routers
Network Learning
Traffic Patterns
Application Signatures
Port Number
IP address

Allot Solutions
Superior Flow Analysis
Enables Accurate Application Identification

> 97% HTTP Layer-7 Identification Accuracy
> 90% HTTPS/SPDY Layer-7 Identification Accuracy
0% False Positives

Dedicated protocol signature engineering team with hitless updates every 6 to 8 weeks

Layer-7 flow analysis provides application identification within encrypted protocols such as HTTPS, SPDY, Skype and BitTorrent

Layer-7 flow analysis reaches past the URL to identify the true application: [Facebook, Facebook Video, Facebook Chat] [Instagram, Instagram Video]

Packet and Flow Analysis for IPv4, IPv6 and IPv4/IPv6 Dual Stack

Methods of Identification:
- Port Value
- String Match
- Numerical Match
- Statistical Analysis
- Behavioral Analysis
- State-Based Analysis
- Informative Analysis
- Historical Analysis

Accurately identifies referred content: videos & games

Allot Proprietary & Confidential 2017
Applications, Users & Network Visibility
Providing a bird’s eye view of all network activity

• Applications, Web, Voice & Video
• Users & Endpoints
• Networks, topology
Reporting & Analytics
Turning network transactions into meaningful information

- Real-time and historical usage reports
- Rich data analysis tools
  - Customize “favorites” dashboard
  - Customer Filtered Views
  - Export data to other systems for further Analysis
- Data drill-down & analysis
  - Real-time data for troubleshooting
  - Historical data for trend and behavior analysis
Intuitive Performance Management
Context Sensitive Drill Down Options
Allot 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
Increase ARPU
Reduce churn
Strengthen brand

Smart Data Source. Insightful Analytics.

Your decisions are only as good as your data

Holistic
view of network and user experience

Consolidation
right data set and speeds analysis

Actionable
trigger action
Allot Data Sets

- **Web**
  - Subscribers Web transactions activity

- **Sessions**
  - Session meta data & 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

- **Security**
  - Malware, phishing and unauthorized access events
Allot Quality of Experience – Layered Approach

Layer 1 – Network QoE
- Based on the Conversation data bucket
- Attributes: Packet-Loss/Retransmission, Round-Trip-Time
- Restriction: None

Layer 2 – Browsing QoE
- Based on the HDR data bucket
- Attributes: Respond time, Download time, Page Errors
- Restrictions: limited info for https
Allot Browsing QoE - Dashboard

Server Response Time Histogram

- **Server Response Time**: Time it takes for a server to respond to a request.
- **HTTP Errors**: Errors encountered during the HTTP request.
- **HTTP Download Time**: Time taken to download the requested content.

**Server Response Time Histogram**

- **0-1 seconds**: Excellent, 99.3% - 99.3% Unique Users (89k)
- **1-2 seconds**: Good, 0.5% - 0.5% Unique Users (28k)
- **2-4 seconds**: Fair, 0.2% - 0.1% Unique Users (29k)
- **4-6 seconds**: Poor, 0.0% - 0.0% Unique Users (4k)
- **6+ seconds**: Bad, 0.0% - 0.0% Unique Users (1k)

**Web Experience Daily Trend**

- **Web QoE Score C**
- **Web QoE Score LW**

**Top 50 Web Publishers QoE**

- **Domain**: cloudfront.net, crashlytics.com, amazonaws.com, baidu.com, saving-system.com
- **% Poor Response Time**: 0%, 0%, 0%, 0%
- **% Poor Download Time**: 0%, 0%, 0%, 0%
- **% HTTP Errors**: 0%, 0%, 0%, 0%
- **Web QoE Score C**: Excellent (<1%), Excellent (<1%), Excellent (<1%), Excellent (<1%)
- **Web QoE Score LW**: Excellent (<1%), Excellent (<1%), Excellent (<1%), Excellent (<1%)
- **Unique Users C**: 31k, 27k, 27k, 23k
- **Number of Page Views**: 47k, 29k, 14k, 1,740k

**Insights**

- 2016-08-11 04:01: Daily trend upward was detected on % of HTTP errors, during busy hours, for Domain-crashlytics.com.
- 2016-08-10 02:00: Hourly outlier was detected on average page download time (sec), during busy hours, for Domain-cloudfront-net.com (Current: 55,57, Aug: 11,57).
- 2016-08-09 13:00: Hourly outlier was detected on average page download time (sec), during busy hours, for Domain-baidu.com (Current: 927,24, Aug: 28,78).
Real-Time Network QoE Monitor

All Network Aspects
- Usage Statistics
- QoE Network Metrics
- Top Applications
- ..... 

Different Views
- Per Network
- Per Device
- Per Plan
- Per Subscriber
- Per Service
Shaping Your Enterprise Traffic...

- Max Bit Rate
- Min Bit Rate
- Expedite
- Drop
- Buffer
- Steer
- HTTP Redirect
Lines, Pipes and Virtual Channels
Logical & Hierarchical QoS Approach
Enterprise Policy Structure
Use case example in MPLS infrastructure

- **Objective:**
  - Guarantee QoS for each branch
  - Guarantee QoS for mission-critical applications
# Intuitive Policy Rule-Base Definition

<table>
<thead>
<tr>
<th>Policy Name</th>
<th>Conditions</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identification</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Name</strong></td>
<td><strong>Conditions</strong></td>
<td><strong>Actions</strong></td>
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<tr>
<td>Corporate</td>
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<td>Accept</td>
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<tr>
<td>Directors dept</td>
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<td>Accept</td>
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<tr>
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<td>Accept</td>
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<td>Administration dept</td>
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<td>Demo2</td>
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<td>Customer D</td>
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<td>University</td>
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<td>Accept</td>
</tr>
<tr>
<td>P2P</td>
<td>Any</td>
<td>Accept</td>
</tr>
</tbody>
</table>
Well-Known “Perfect Storms”  
(e.g. Windows Update, Antivirus Update, etc...)

**Without Traffic Management**

“CRM application getting very slow, cannot use it!!!!”

**With Traffic Management**

Business as usual...
Different Users - Different Needs - Same Service

Human Resources

“I need Facebook to check candidate profiles”

Manufacturing Floor

“No Facebook access during working shifts”
Security

NETWORK Security

Web Security
Allot’s Security Domain:

*Two separate offerings – Each protecting something different:*

**NETWORK Security**
Protecting *network assets* against incoming and outgoing cyber threats

**WEB Security**
Protecting the end points of *data users* from online threats
Service Protector

Anti-Abuse

- Identify and isolate abusive User behavior
- Dynamic internal blacklist
- Protect IP reputation / avoid DNS blacklisting
- Infection notification services

Anti-DDoS

- Identify network anomalies with Network Behavior Anomaly Detection (NBAD)
- Supports Dynamic Content Signatures
- Ensures Network stability
- Protect against computing resources misuse

Integrated Security Service
Protecting Networks against Threats

DDoS
Exploits weak points by consuming network and processing resources

Transit bandwidth
Computation resources
Server processing resources

Significant risk to customers sharing resources

Bots
C&C

Blacklisted! Legitimate emails can’t be sent from DC network

Email server
Reject connections from the blacklisted IP
NAT IP responsible for spam due to bots on the inside

Outgoing SPAM
Bot-infected Hosts

Email server
Reject connections from the blacklisted IP
NAT IP responsible for spam due to bots on the inside

Data Center

Hosting/Cloud services

NAT

Bot-infected Hosts
Allot Security Products Portfolio

SECaaS for consumers, SMBs and Enterprises

WEB SECURITY

• Web Filtering
  • HTTP and HTTPS (SNI & MITM) inspection
  • Content Filtering high efficacy (URL DB and real time content analysis)
  • 30 minute re-categorization service
• Anti-Malware
• Anti Spam
• Anti fishing / AD Removal
• Application Control
• Multi-Tenanted
• Scalable & modular
• Centralized Management
Web Security as a Service Scales to Support Millions

For the Mass Market
- Works with any device
- Easy to acquire & Simple to use
- Personalized
- No Installation or maintenance required
- WiFi (off-net) continuity
- Notification and Reporting

For Businesses
- All the Mass Market benefits PLUS:
  - Self management of user profiles and user groups
  - Per-tenant Acceptable Use Policy
  - Per-tenant notification and reporting
  - On-premise and cloud deployment options
Allot WebSafe Personal Architecture
Modular, Distributed, Scalable

Carrier Provisioning

Central Manager  Reporting  Web Server

URL Filter  Anti-Malware

Shared Infrastructure

Internet

May 3, 2017
Protecting Mobile Users in Europe

Over 15,000,000 mobiles protected!
Architecture & Platforms
Allot Architecture

- **NetXplorer GUI Client**
- **OSS/PCRF**
- **OCS/OFCS**
- **AAA**
- **NetXplorer Server**
- **Subscriber Management Platform (SMP)**
- **Allot NetEnforcer**
- **Allot Service Gateway**
- **NetXplorer Collectors**

Layers:
- **Interface Layer**
- **Application Layer**
- **Collection Layer**
- **Real-time Service Layer**
Allot’s Platforms
Allot Platforms – for CSP (in 2017)

Allot Service Gateway

# Ports
8X100G
96 X 1/10GE

4X100G
24 X 1/10GE

12 X 1/10GE

10 X 1/10GE

Large SGVE

2G

10G

48G

70G

140G

500G

Speed - Forwarding

SG-9100

2U

SG-9500

SG-Tera

14U

2G

140G
Allot Platforms – for Enterprise (in 2017)

Allot Service Gateway

- **# Ports**
  - 20 X 1/10GE
  - 10 X 1/10GE
  - 8 X 1/10GE
  - 10 X 1/10GE
  - 8 X 1GE
  - 4 X 10/100/1000Base

- **Speed - Forwarding**
  - 0.4G
  - 2G
  - 6G
  - 20G (600M)
  - 35G (1.2G)
  - 48G

- **Models**
  - X-Small SGVE
  - AC-500
  - AC-1400
  - SSG-600
  - SSG-800
  - Large SGVE

- **Port Speeds**
  - 2G
  - 6G
  - 20G
  - 35G
  - 48G

- **Capacity**
  - 0.4G (600M)
  - 1U
  - 2U
Powerful, Cost Effective SSG Family

**SCALABLE PLATFORM**
- High performance up to 30Gbps
- 22 X 1/10GE ports (SSG800)
- 600,000 Policies
- 1,000 to 100,000 users supported
- HP Vertica and MicroStrategy based Big Data analytics

**INTELLIGENCE & CONTROL**
- Best in class DPI: encrypted traffic, anonymizers, P2P, Office365, Conferencing...
- Application and user based QoS control & QoE reports
- Historical and Real Time reports

**SECURITY**
- Application and Web Acceptable use policy enforcement
- Web and Content filtering
- Block risky applications
- Kaspersky, BitDefender and Sophos Anti Malware & Anti Phishing
- Security Updates from the cloud
SSG: The Smart Way to Protect Users and Control Application Performance

Target Market: Enterprises

Secure Service Gateway

WSP + SG

DDoS Protection
Web Filtering
Anti-Malware
Network Analytics
Traffic Management
SG-Tera Highlights

• 15U Carrier Grade AdvancedTCA® platform
• Engineered for NEBS L3 requirements
• Support Cluster Architecture (up to 4 devices)
• 320-500Gbps per device and a total of 1.28Tbps in a cluster
• Interfaces Types:
  • 100G (CFP2)
  • 1/10G (SFP+)
    • Additional ports for Cluster Connectivity.
• All ports are network/steering
• Rear Facing Interfaces
SG-9500 Highlights

- **Targeted at Large cloud data center, enterprise, and small-medium ISP**
- **140 Gbps** per appliance; up to 1 Tbps in a cluster (using Asymmetric group)
- QoS Enforcement Levels:
  - 10G included by default
  - Additional 10G or 1G management license can be purchased
- Running **AOS** - Allot Operating System over **ACP** – Allot Common Platform
- **2U 19” rack mount**
- Network Ports: **1G/10G (READY FOR 100G INTERFACE AOS 15.1)**
- Power Supply: **AC / DC**
- **HP Server**
- **Silicom NIC cards**
# Service Gateway Platforms - summary

<table>
<thead>
<tr>
<th>Platform</th>
<th>70 Gbps</th>
<th>12 x 1/10GE ports</th>
<th>1.5 Million Subscribers</th>
<th>Cluster up to 8 devices</th>
<th>1U 19&quot; Rack Mount</th>
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</thead>
<tbody>
<tr>
<td>SG-9100</td>
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</tr>
<tr>
<td>SG-9500</td>
<td>140 Gbps</td>
<td>4 x 100GE ports</td>
<td>24 x 1/10GE ports</td>
<td>4 Million Subscribers</td>
<td>Cluster up to 8 devices</td>
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<td></td>
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<td></td>
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<td></td>
<td>2U 19&quot; Rack Mount</td>
</tr>
<tr>
<td>SG-Tera</td>
<td>500 Gbps(1-10 blades)</td>
<td>8 x 100GE ports</td>
<td>96 x 10GE ports</td>
<td>15 million subscribers</td>
<td>Cluster up to 4 devices</td>
</tr>
<tr>
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<td></td>
<td>14U 19&quot; Rack Mount</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Platform</th>
<th>20 Gbps</th>
<th>8 x 1/10GE ports</th>
<th>20K users per device</th>
<th>Cluster up to 4 devices</th>
<th>1U 19&quot; Rack Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSG-600</td>
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<td></td>
</tr>
<tr>
<td>SSG-800</td>
<td>35 Gbps</td>
<td>20 x 1/10GE ports</td>
<td>20K users per device</td>
<td>Cluster up to 4 devices</td>
<td>2U 19&quot; Rack Mount</td>
</tr>
</tbody>
</table>

## SSG NMS

All in one management for the SSG:
- NX
- SMP
- DM
- CS
- SPC
- CM (for WSE)
Allot Enterprise Solution Deployment

**Data Center**
- Web, Email, VPN Servers
- CRM/ERP
- Video
  - PBX
  - VoIP GW

**New York**
- VoIP, Video

**London**
- Email, Citrix

**Tokyo**
- ERP, CRM

**Networks**
- Internet
- WAN or VPN

**Devices**
- Allot Service Gateway
- Allot NetEnforcer
- Allot SMP
- Allot ClearSee Analytics
- Allot NetXplorer
- Management

**Other Services**
- Internet
Typical Deployment: Internet Link

- **Data Center**
  - Web, Email, VPN Servers
  - CRM/ERP
  - Video
  - PBX
  - VoIP GW

- **New York**
  - VoIP, Video

- **London**
  - Email, Citrix

- **Tokyo**
  - ERP, CRM

- **HQ**
  - Allot NetEnforcer

- **Allot Service Gateway**

- **WAN or VPN**

- **Users**

- **Allot SMP**
  - Allot ClearSee Analytics (as needed)

- **Allot NetXplorer Management**
Typical Deployment: WAN Link

Data Center
- Web, Email, VPN Servers
- CRM/ERP
- Video
- PBX
- VoIP GW

Allot Service Gateway

Allot NetEnforcer

Allot SMP
Allot ClearSee Analytics (as needed)

Allot NetXplorer Management

New York
- VoIP, Video

London
- Email, Citrix

Tokyo
- ERP, CRM

WAN or VPN

HQ

Users

Allot NetEnforcer
Typical Data Center Deployment

Data Center
- Web, Email, VPN Servers
- CRM/ERP
- Video
- PBX
- VoIP GW

Allot Service Gateway

Allot NetEnforcer

HQ

Allot SMP
Allot ClearSee Analytics (as needed)

Allot NetXplorer
Management

Users

WAN or VPN

New York
- VoIP, Video

London
- Email, Citrix

Tokyo
- ERP, CRM
SG-VE
NFV
Allot roadmap towards NFV

**Phase 1:**
**COTS**
Appliances will run as virtual elements on standard COTS hardware

**Phase 2:**
**Telco Cloud**
Virtual Elements will run in an operator private cloud with orchestration that is still statically (manual) provisioned.

**Phase 3:**
**Advanced Cloud**
Virtual Elements will run in an advanced private cloud with full orchestration that supports automatic configuration, synchronization and elastic resource provisioning.
Service Gateway Virtual Edition

- Hardware Independent
- High Capacity & Cost-effective
- Easily Scalable & Fast Deployment
- New deployment options
  - e.g. vCPE, vTDF
- Pre-integrated with leading virtualization eco-systems

KVM or VMware ESXi
## SG-VE Technical Specification

<table>
<thead>
<tr>
<th>Allot Service Gateway Virtual Edition</th>
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</thead>
<tbody>
<tr>
<td><strong>Virtual Machine</strong></td>
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<tr>
<td>Virtual CPUs</td>
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<td>Virtual RAM</td>
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<td>Virtual Storage</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td>Throughput</td>
</tr>
<tr>
<td><strong>Hypervisor</strong></td>
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<tr>
<td>VMWare ESXi</td>
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<tr>
<td>RedHat KVM</td>
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<tr>
<td><strong>Cloud</strong></td>
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<td>OpenStack</td>
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<tr>
<td>VMware</td>
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<tr>
<td><strong>Operating System</strong></td>
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<tr>
<td>CentOS</td>
</tr>
</tbody>
</table>

*Performance figures were measured on reference system, HP DL380G9, E5-2680 V3 CPU, 24 Cores, SR-IOV enabled*
Why Choose Us?
Allot – Partnering for excellence

**Technology**
- Innovative
  - Superior DPI Technology
  - High-Performance, scalable solutions
  - Reporting & Analytics
  - Traffic management
  - Policy control
  - Security

**Know-How**
- Proven Experience
  - Thousands of deployments with Enterprise customers
  - Global Support Organization

**Collaboration**
- Partnering for Excellence
  - Global network of channel partners
  - Integrated Value Added Service partners for Workstyle browsing, Anti-Virus and Anti-spam
Find out how Allot can help YOUR business to become a leading Digital Lifestyle Provider

Email info@allot.com
www.allot.com