



# FortiSIEM

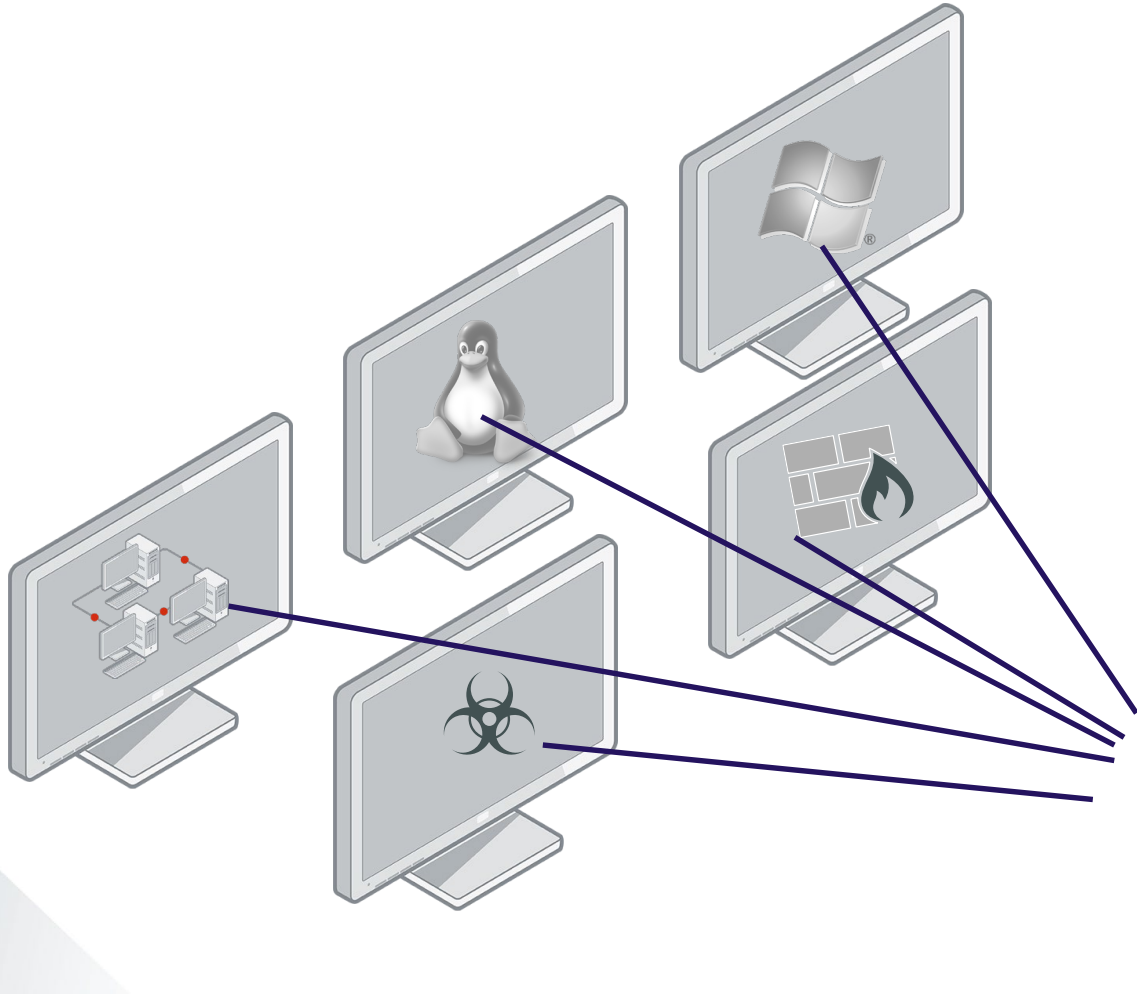
**Visibility, Correlation, Automated Response and  
Remediation in a single, scalable solution**

Silviu Pufan

Channel Systems Engineer – SEE

# IT&C Monitoring – “No Time for Downtime”

- Many systems to monitor
- *When* an incident occurs, investigations can be very time consuming.
- Could we have detected the incident earlier?
- Are we still compromised or at Risk?
- Let's *hope* not.....



# Current monitoring is not scalable.. Silo'd tools

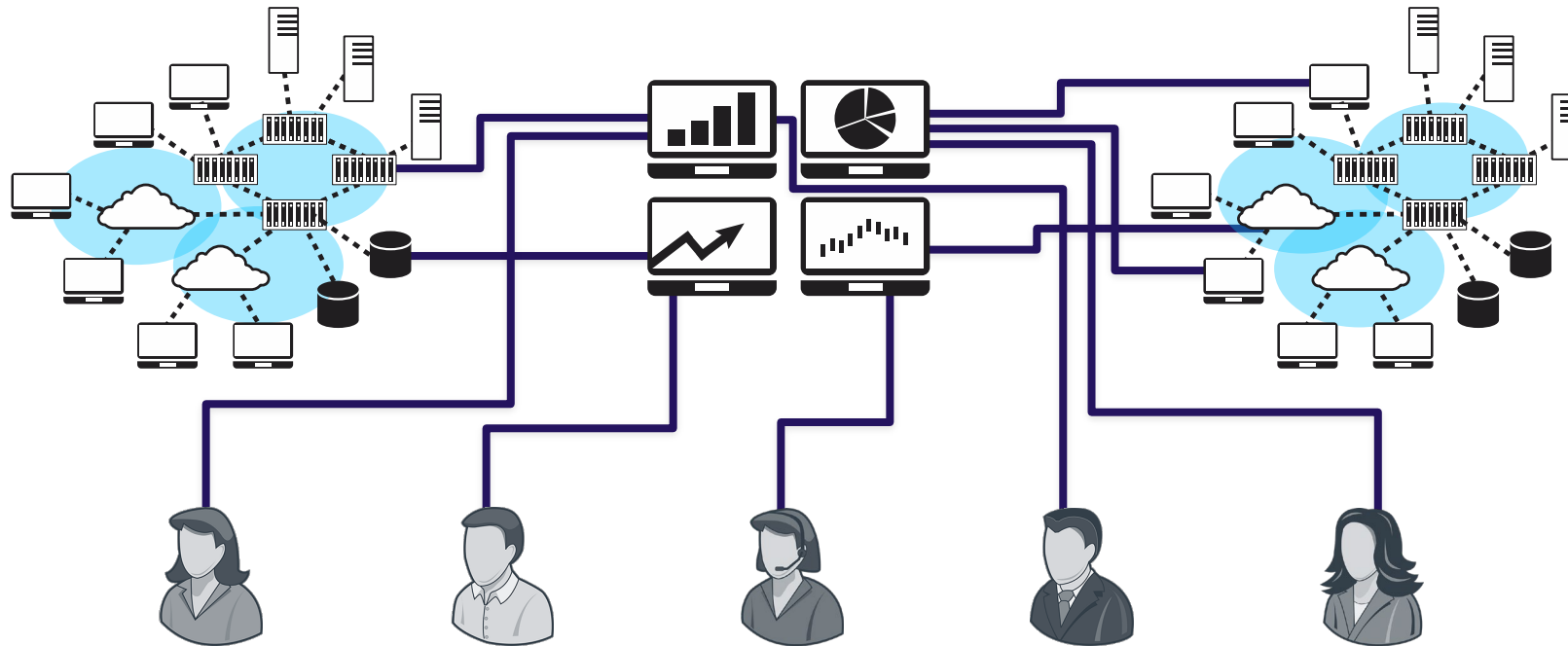
## TICKETING SYSTEMS



## NOC



## SOC



NOC Team

SOC Team

Help Desk

Datacenter Director

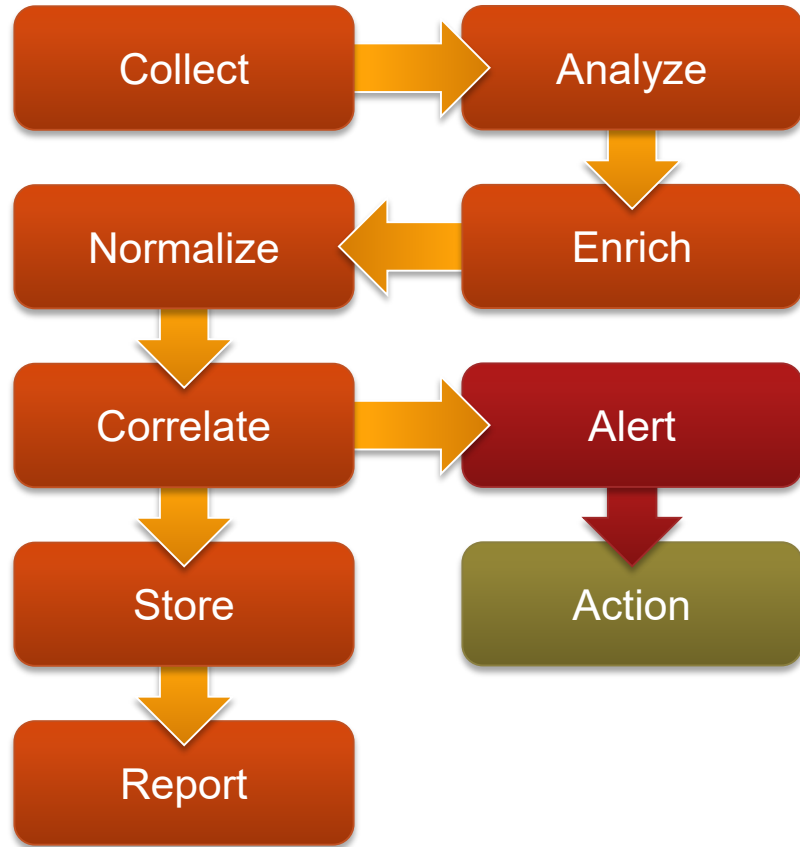
Systems Admin



# Dynamics of Current Conditions



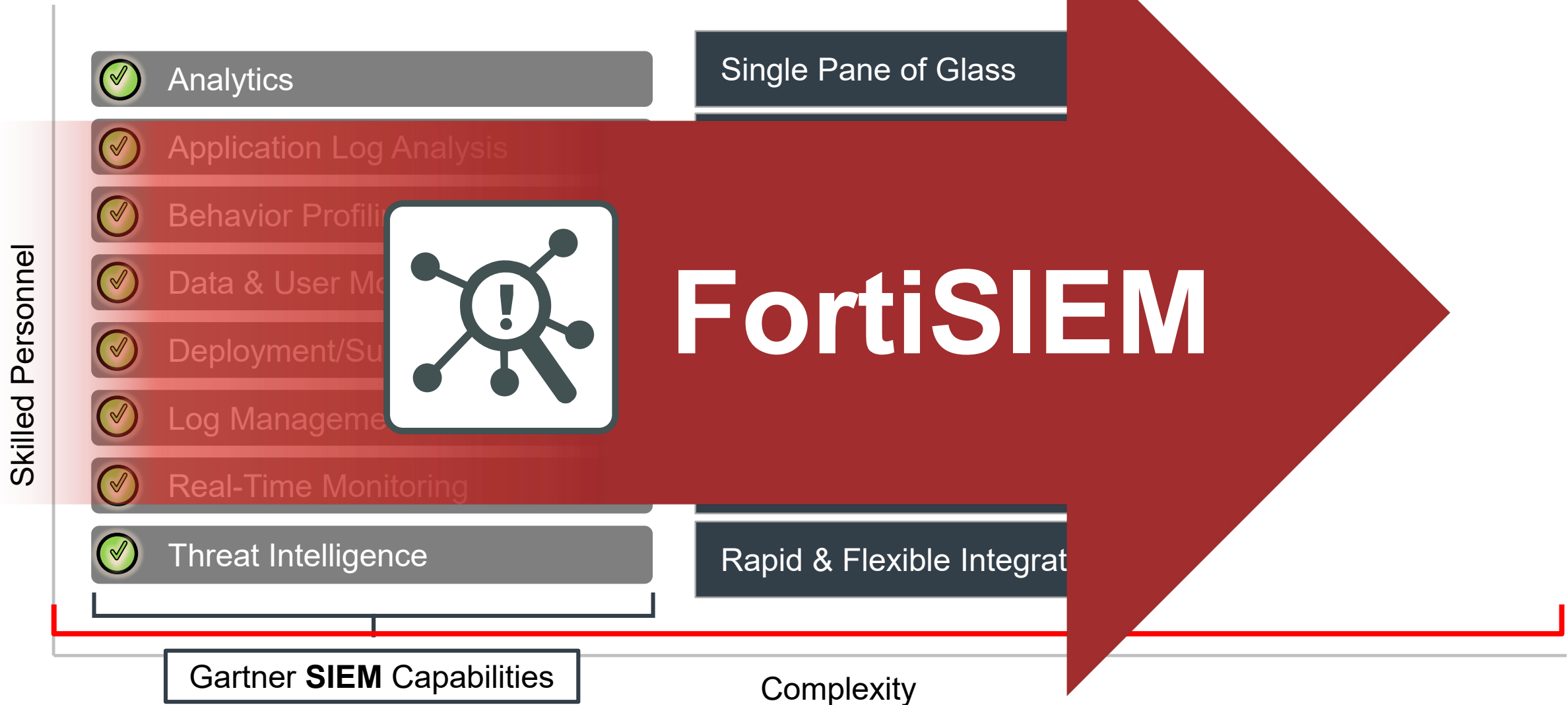
# So what is SIEM



- Security Information & Event Management
- Input – Collects logs
- Transformation - Analysis/Correlation
- Output – Alerts/Reports/Dashboards

```
May 6 17:55:48 squid[1773]: [ID 702911 local4.info] 192.168.20.39 1715 2.2.2.2 172.16.10.6  
3128 674 - - - - [06/May/2008:17:55:48 -0700] GET "http://mail.abc.com/mail/" HTTP/1.1 302  
1061 568 "http://www.abc.com/" "Mozilla/5.0 (Windows; U; Windows NT 5.1; en-US; rv:1.8.1.14)  
Gecko/20080404 Firefox/2.0.0.14" TCP_MISS:DIRECT
```

# SIEM vs. FortiSIEM



# Unified NOC & SOC

The screenshot displays the FortiSIEM dashboard with the following components:

- Navigation:** Security Dashboard, Perimeter, Access, Malware, Vulnerability, Exploits, Policy Violation.
- Permitted Outbound Ports By Bytes (Last 1 hour@11:46):**

IP Protocol, Destination TCP / UDP Port	AVG (Total Bytes)	Trend
17 (UDP), 8888	30.61 KB	[Red line]
17 (UDP), 123 (NTP)	17.66 KB	[Yellow line]
6 (TCP), 443 (HTTPS)	1.87 KB	[Green line]
17 (UDP), 53 (DOMA...)	1.31 KB	[Green line]
6 (TCP), 80 (HTTP)	606.43 B	[Green line]
6 (TCP), 5587	131 B	[Green line]
6 (TCP), 3186	129 B	[Green line]
6 (TCP), 6100	129 B	[Green line]
- Permitted Inbound Ports By Bytes (Last 1 hour@11:46):**

IP Protocol, Destination TCP / UDP Port	AVG (Total Bytes)	Trend
6 (TCP), 45270	219.21 KB	[Red line]
6 (TCP), 45119	126.28 KB	[Yellow line]
6 (TCP), 45115	124.92 KB	[Yellow line]
6 (TCP), 45174	39.21 KB	[Green line]
6 (TCP), 16389	32.47 KB	[Green line]
6 (TCP), 16403	32.47 KB	[Green line]
6 (TCP), 16376	29.72 KB	[Green line]
17 (UDP), 4500 (IPS...)	19.02 KB	[Green line]
- Denied Internal Sources By Connections (Last 1 hour@11:46):**

Source IP	Count
192.168.200.12, HO...	~10000
172.16.22.137, HOS...	~7500
192.168.19.2, HOST...	~4000
192.168.88.16, HOS...	~3500
172.16.3.9, HOST-1...	~3000
192.168.89.2, HOST...	~2500
192.168.19.1, ph-n...	~1500
192.168.19.1, HOST...	~1000
172.16.22.100, HOS...	~500
192.168.64.115, HO...	~200
- Firewall Deny: Top Countries By Inbound Denies (Last 1 hour@11:48):**

Source Country	COUNT (Matched Events)
China	43
United States	42
Hong Kong	12
Vietnam	4
Seychelles	3
Chile	2
Russian Federation	2
Spain	1
- Top Business Services and Security Incident Details By Count (Last 1 hour@12:21):**

Business Service Name, Incident Source, Incident Target	COUNT (Matched Events)	Trend
Core Banking System and EBanking, ERP, GP013 Service, ITIL, PCI Service, P...	8	[Red line]
Core Banking System and EBanking, ERP, GP013 Service, ITIL, PCI Service, P...	8	[Red line]
Core Banking System and EBanking, ERP, GP013 Service, ITIL, PCI Service, P...	3	[Red line]
COBIT Service, Core Banking System and EBanking, ERP, 123, Email, FS, GP...	1	[Green line]
- Top Devices By Failed Login (Last 1 hour@12:21):**

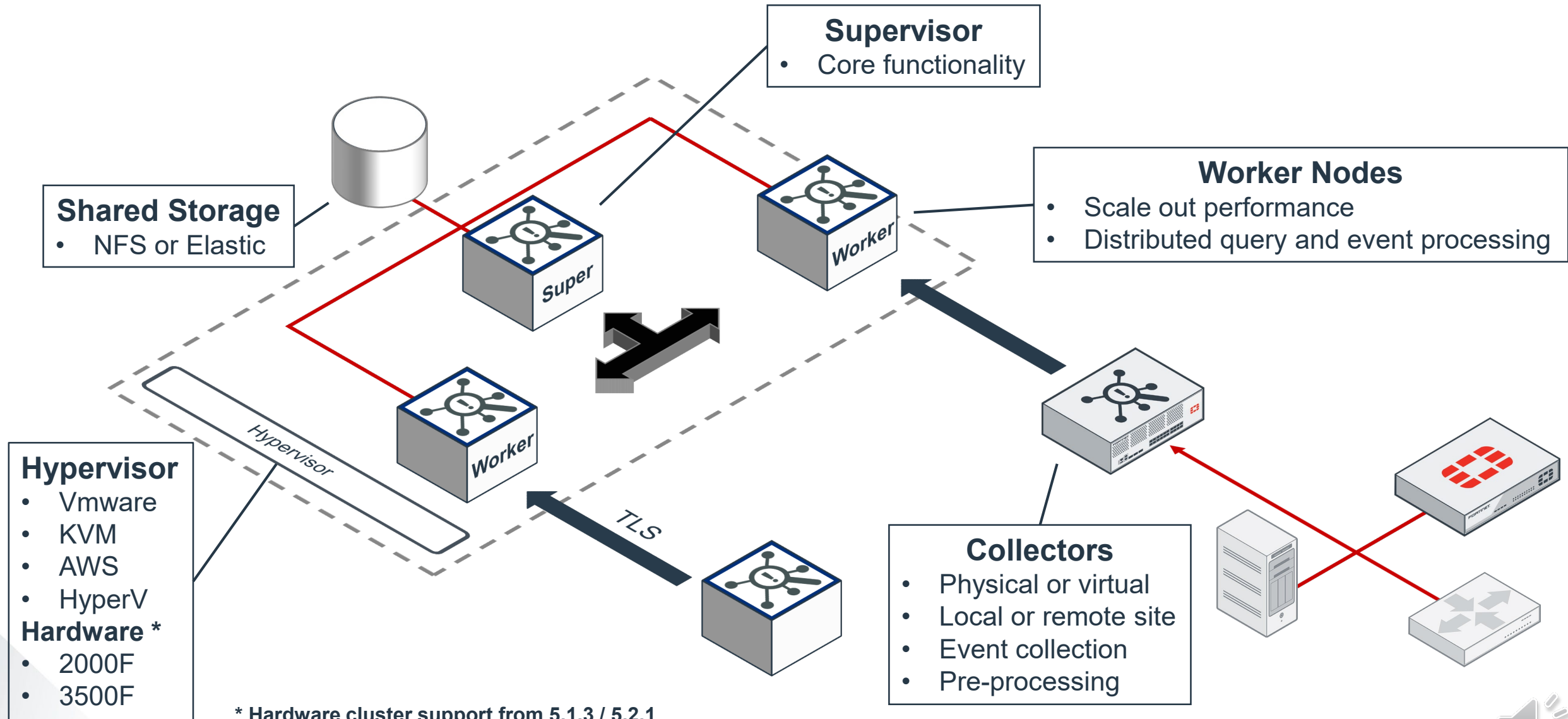
Reporting Device	COUNT (Matched Events)	Trend
FG240D3913800441	1508	[Red line]
WIN2008-AD5	1056	[Red line]
WIN2K8	251	[Green line]
HOST-192.168.1.54	4	[Green line]
- Top Network IPS Events By Count (Last 1 hour@12:21):**

Event Type	Count
Denied traffic, 192.168.200.12	~100
Permitted traffic, 192.168.22.11	~100
Built UDP connection, 172.16.32.221	~100
FortiGate appoxt1 ip pass, 192.168.88.11	~100
Denied traffic, 192.168.88.16	~100
Session closed, 192.168.22.11	~100
- Firewall Deny: Top Country, State, City By Inbound Denies (Last 1 hour@12:22):**

Source Country, Source State, Source City	COUNT (Matched Events)	Trend
Portugal, Lisboa, Soledre	100	[Red line]
United States, Michigan, Ann Arbor	6	[Green line]
Seychelles	3	[Green line]
United States, California, Fremont	3	[Green line]
- Map:** A world map showing geographic locations of events, with red pins indicating specific incident locations.
- Device Status Table:**

Maint	Device	Type	Avail Status	Packet Loss	Uptime	Uptime %	Perf Status
●	[Blurred]	Microsoft Windows	●	0%	1112 days	100%	✖
●	FortiGate50B	Fortinet FortiOS	●	0%	1206 days	100%	⚠
●	[Blurred]	IBM AIX	●	0%	1182 days	100%	✖
●	[Blurred]	Microsoft Windows	●	0%	2 hours	100%	✖
●	Fortigate90D	Fortinet FortiOS	●	0%	20 days	100%	✖

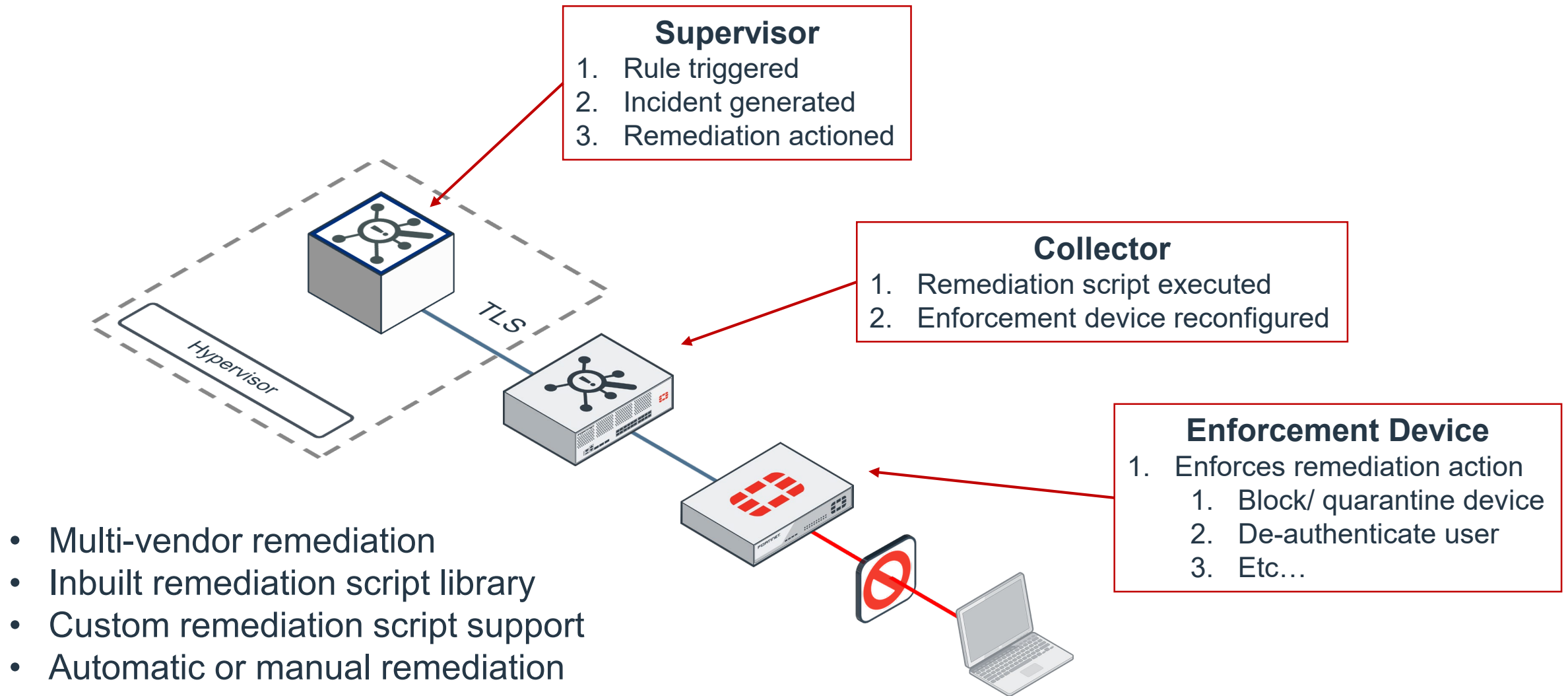
# Scalable Architecture



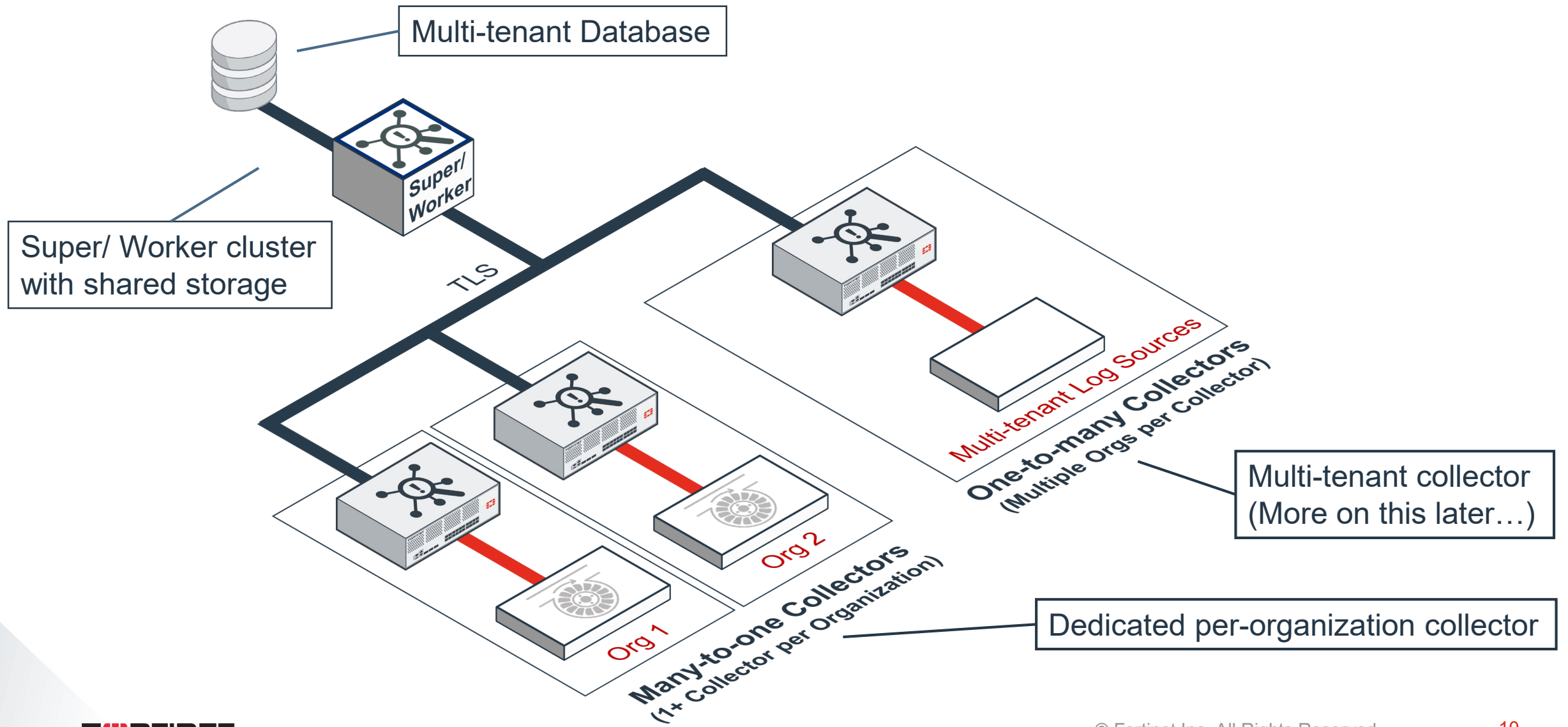
\* Hardware cluster support from 5.1.3 / 5.2.1



# FortiSIEM Incident Remediation



# Multi-tenant Architecture



# FortiSIEM CMDB Summary

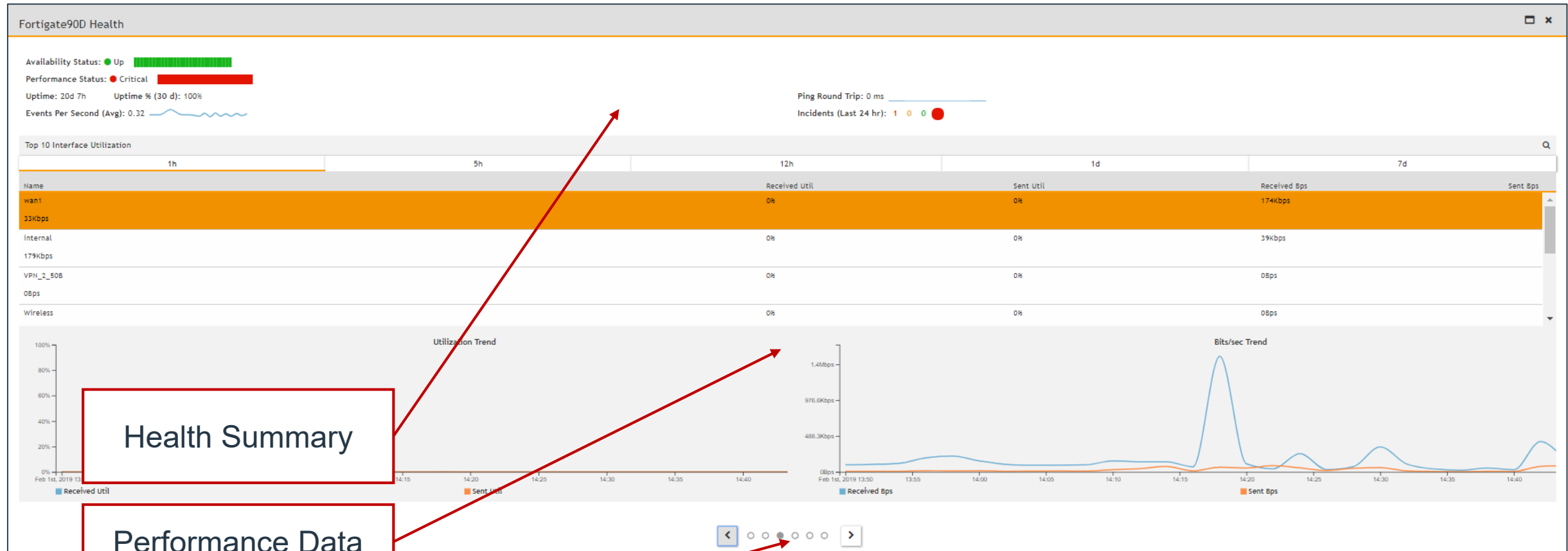
The screenshot displays the FortiSIEM CMDB interface. At the top, navigation tabs include DASHBOARD, ANALYTICS, INCIDENTS, CASES, CMDB, RESOURCES, TASKS, and ADMIN. A summary bar shows counts for various device types: Routers (7), Firewalls (11), Windows (10), Unix (3), ESX (0), AWS (0), and Azure (0). The left sidebar lists categories like Devices, Network Device, Server, and Virtual Infrastructure, with 'Firewall' selected under Network Device.

The main area shows a table of devices under the path 'CMDB > Devices > Network Device > Firewall'. The table columns include Name, IP, Type, Status, Discovered, Method, Agent Policy, Agent Status, Monitor Status, Event Status, AWS Account, and AWS Instance. The 'FortiGate90D' device is highlighted in orange.

Below the table, the 'Summary' tab is active for the 'FortiGate90D' device. It shows general information (Name: FortiGate90D, Access IP: 10.1.1.1, Device Type: Fortinet FortiOS, Importance: Important, Contact Info, Description: fortigate 90D), health overview (Availability Health: Up, Avg CPU Util: 100%, Performance Health: Critical, Avg Mem Util: 41%), incidents (last 24 hrs: High: 1, Medium: 0, Low: 0), and statistics (Created: Jul 24 2019, Last Discovered: Sep 10 2019, Last Updated: Sep 10 2019, Interfaces: 5, Processors: 0). A 'Member of 4 Groups' section lists: Group #1: /Network Device/Firewall, Group #2: /Network Device/Network IPS, Group #3: /Network Device/Security Gateway, and Group #4: /Network Device/WLAN Controller.

Four red callout boxes with arrows point to specific features: 'Device Summary' points to the table header, 'Auto Asset Discovery & Auto Asset Categorization' points to the 'Discovered' column, 'Configuration Auditing' points to the 'Configuration' tab, and 'Device Detail' points to the detailed view of the FortiGate90D device.

# CMDB Performance and Availability Monitoring

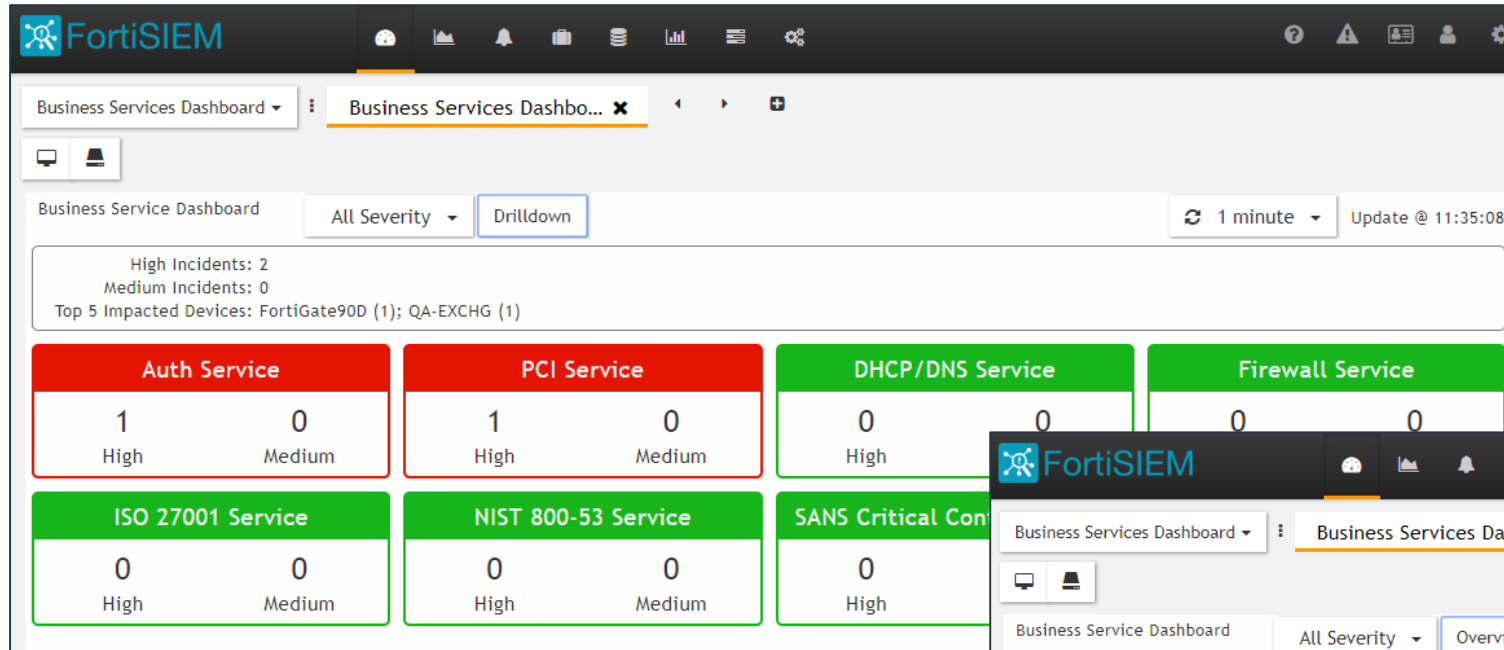


Health Summary

Performance Data

Additional Data

# CMDB Business Services



- Group disparate devices
- Monitor via dedicated dashboards
- Report, alert and monitor critical services

Business Services Dashboard

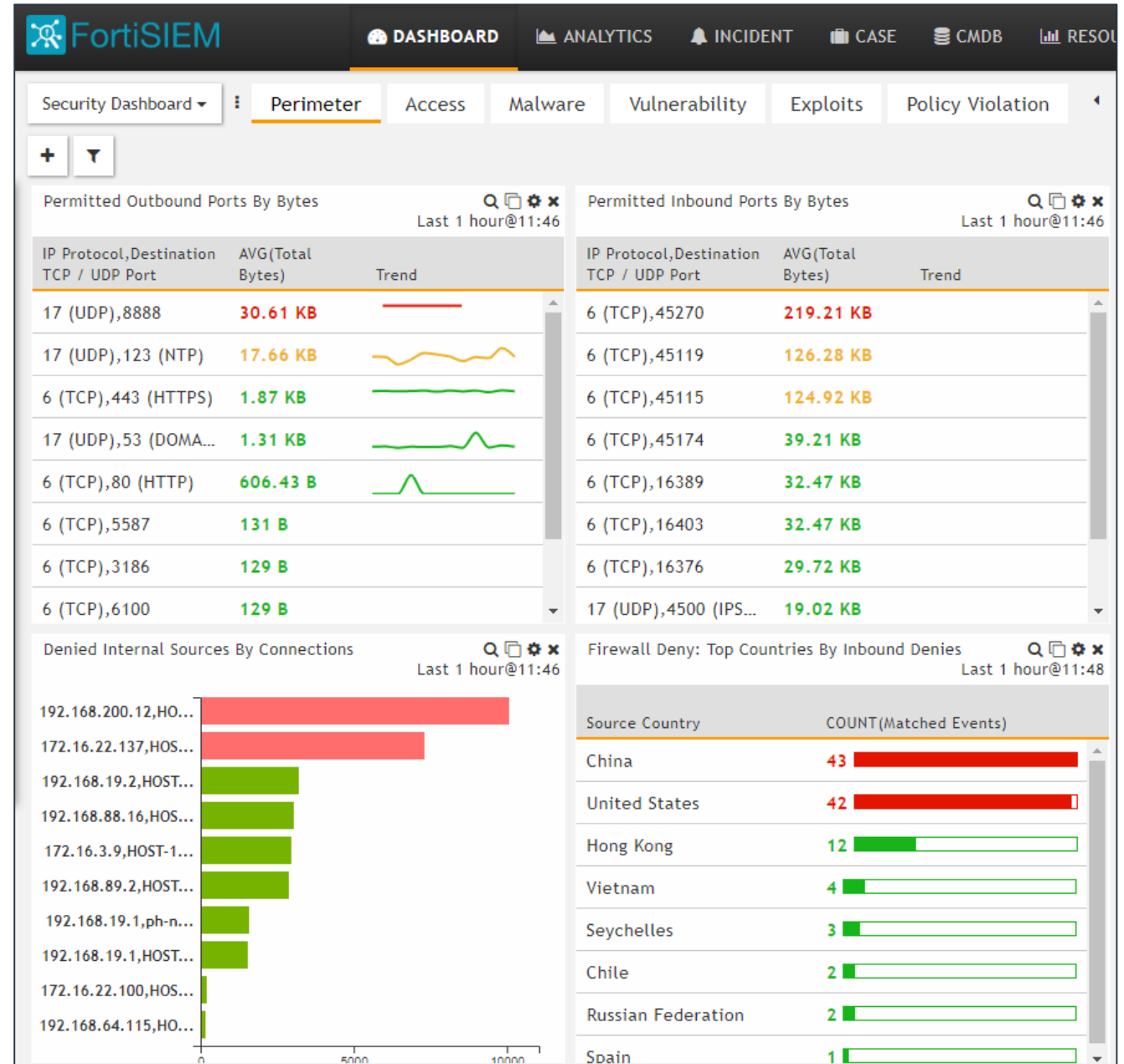
All Severity | Overview | 1 minute | Update @ 11:35:44

Business Service Name	Organization	Perf Status	Perf Status Trend	Security Status	Avail Incidents	Perf Incidents	Security Incidents	Other Incidents
Auth Service	Super	●	██████████	●	1	0	0	0
DHCP/DNS Service	Super	●	██████████	●	0	0	0	0
Firewall Service	Super	●	██████████	●	0	0	0	0
ISO 27001 Service	Super	●	██████████	●	0	0	0	0
NIST 800-53 Service	Super	●	██████████	●	0	0	0	0
PCI Service	Super	●	██████████	●	0	0	0	0
SANS Critical Contr	Super	●	██████████	●	0	0	0	0
VPN Service	Super	●	██████████	●	0	0	0	0

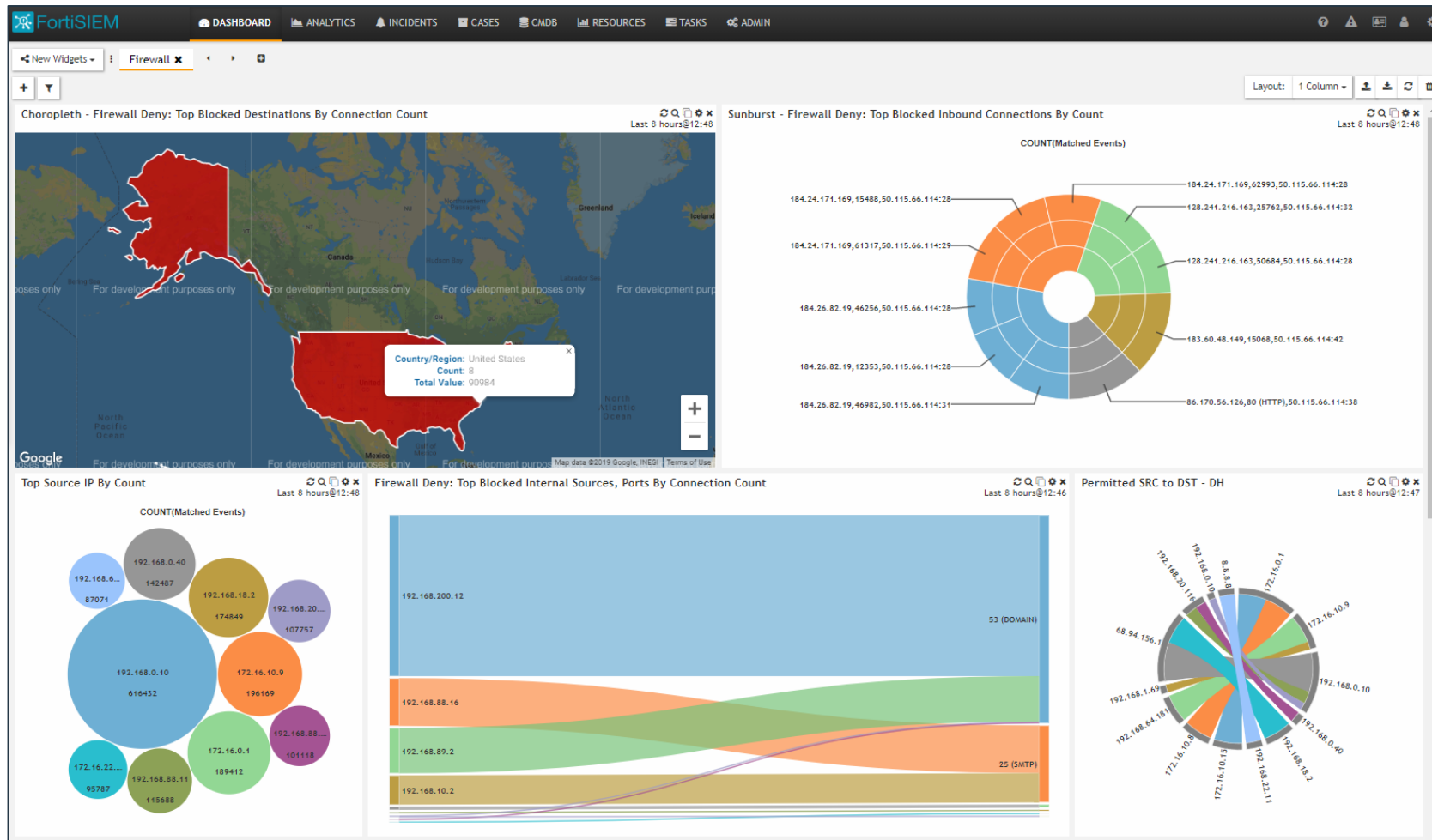
Auth Service - Avail Incidents for last 24 hours  
High: 1  
Medium: 0  
Low: 0  
Total Unique Incidents: 1

# Dashboards

- Multiple dashboard types
  - Widget
  - Device Summary
  - Business Service
  - Identity & Location
  - Interface Usage
  - PCI
- Dashboard slideshow
- Customizable data visualization
- Multi dashboard support
- RBAC
- Shared dashboards



# Dashboard Visualizations

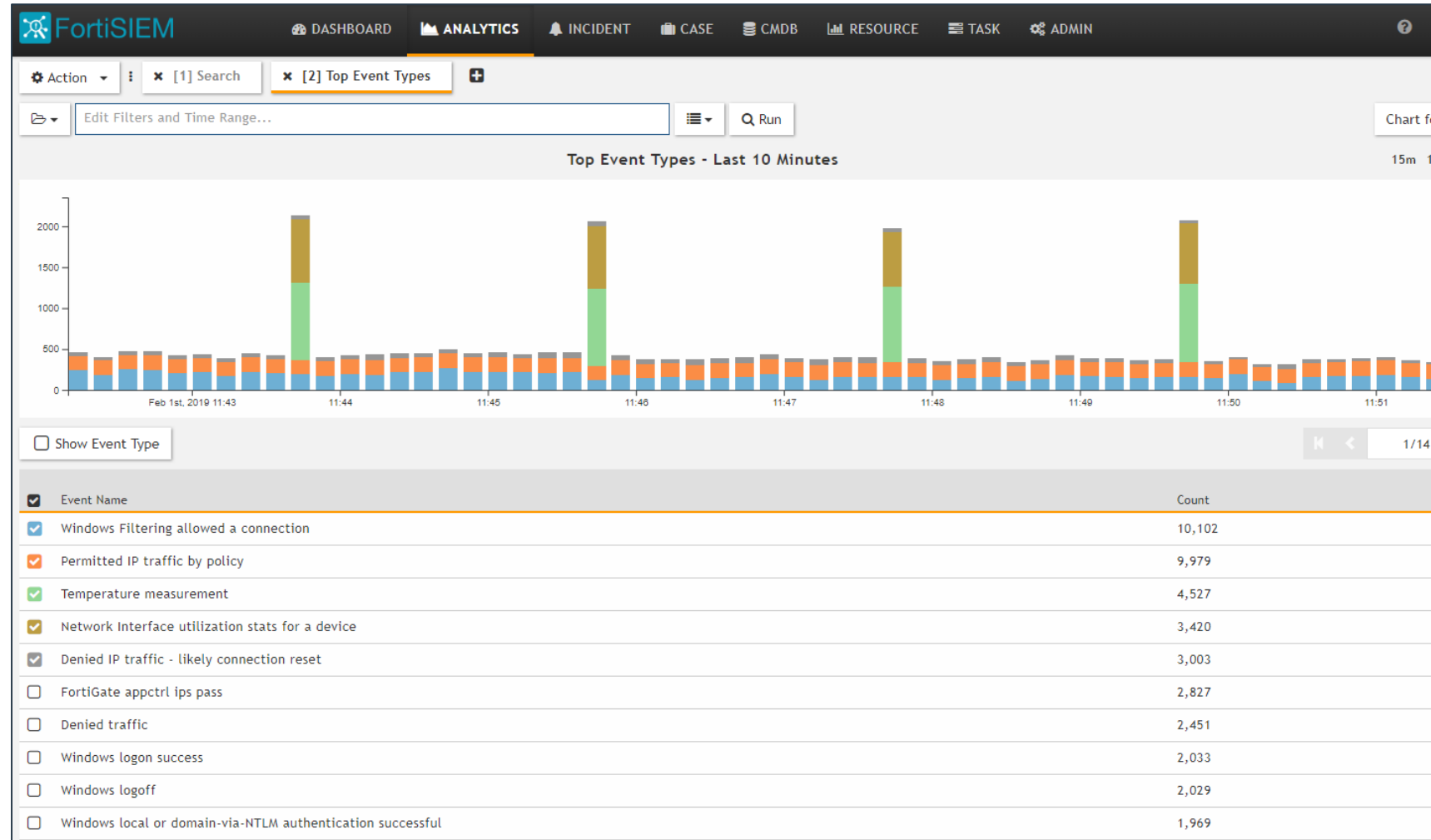


Wide range of data visualizations, including:

- Bar and line chart
- Table
- Sankey and chord
- Choropleth
- Starburst
- Bubble
- Donut
- Heat map
- Pivot table
- ... and more!

# FortiSIEM Analytics

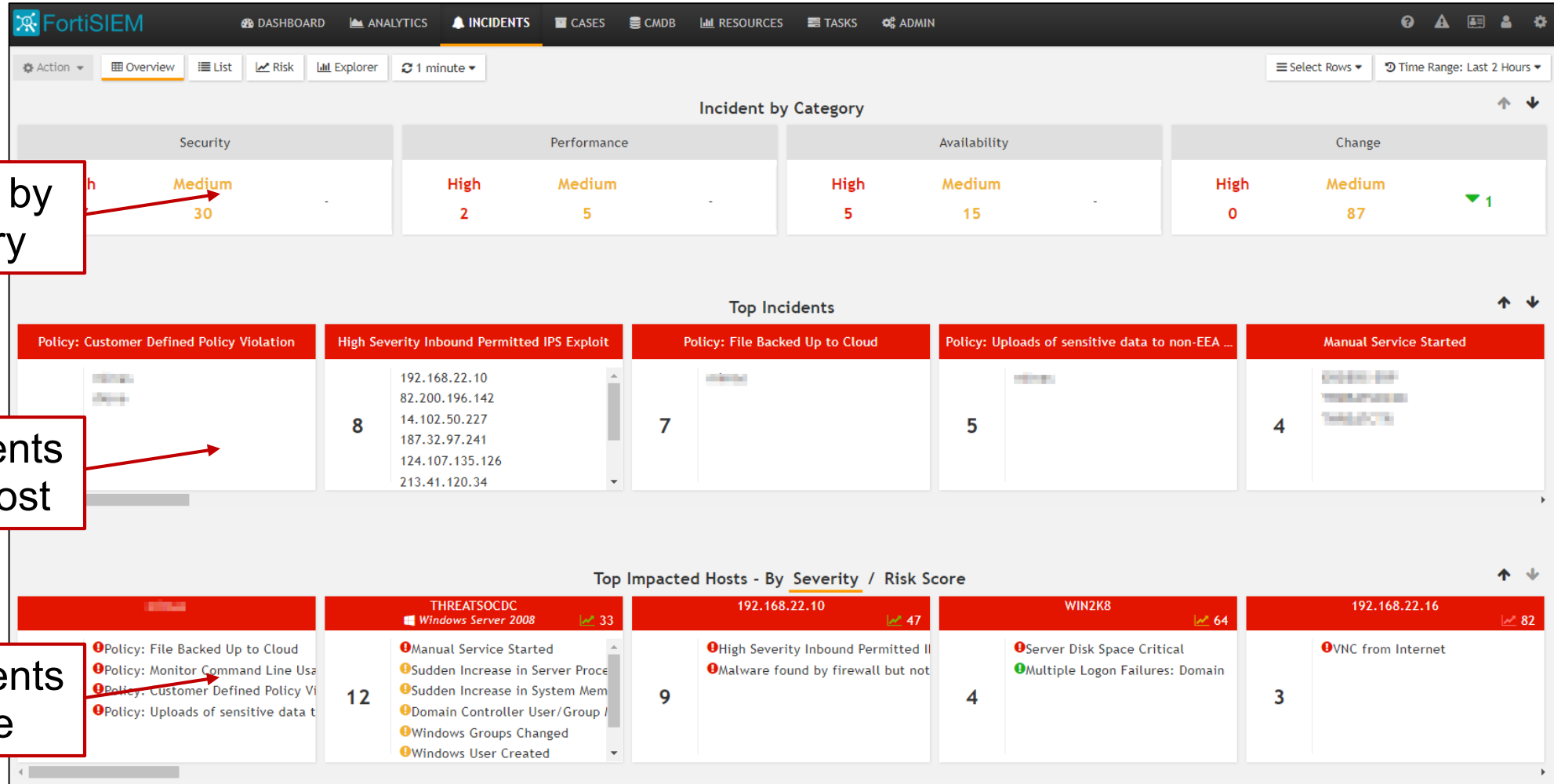
- Analytics
  - Real time
  - Historical
- 2000+ prebuilt reports
- 600+ inbuilt rules
- Custom rules and reports
- Easy to use GUI
  - Multi tab
  - Easy to use query builder





# Incident Summary Dashboard

## At-a-Glance View of Triggered Incidents



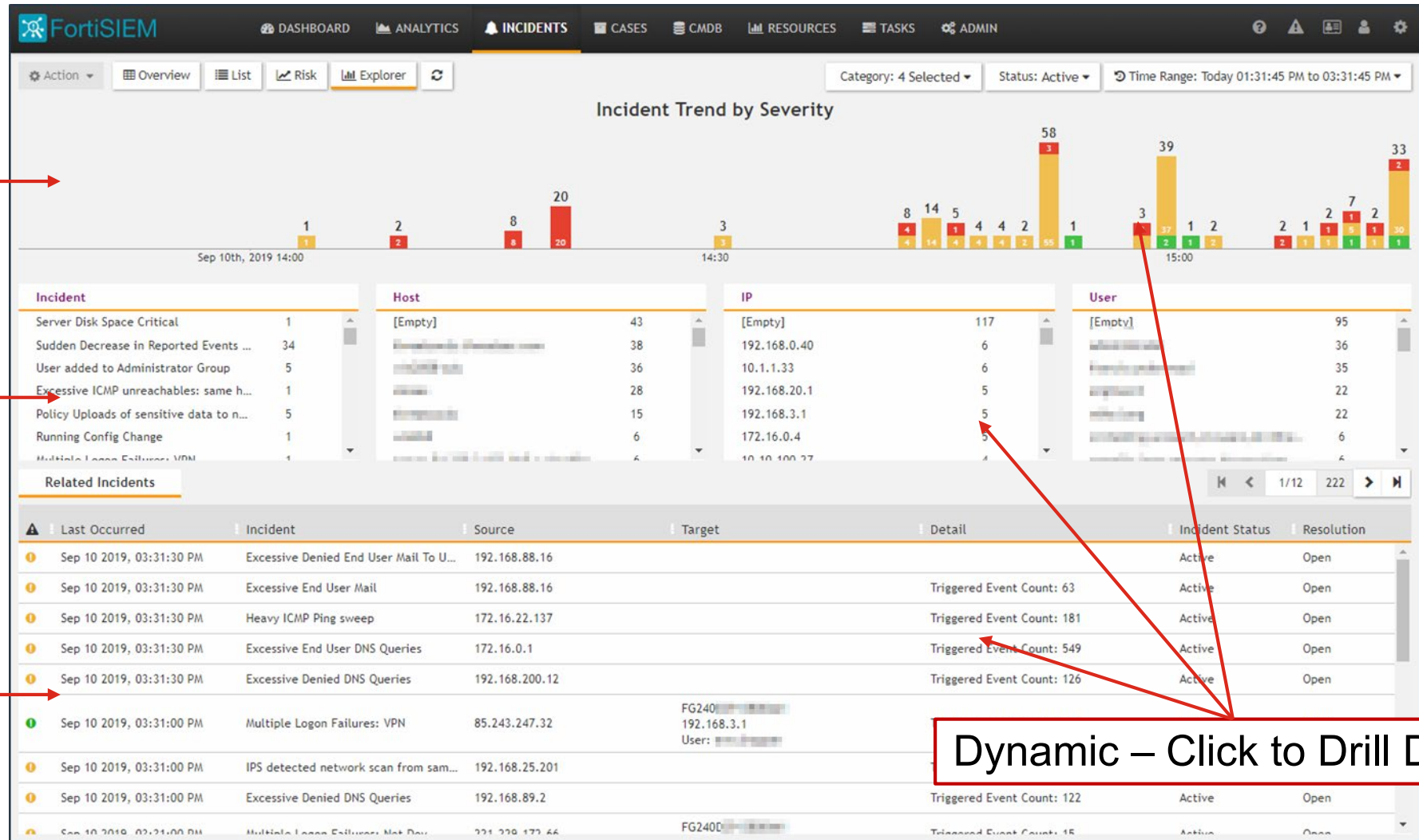
Incidents by Category

Incidents by Host

Top Incidents by Type

# Incident Explorer

## Dynamically Explore FortiSIEM Incidents



Incident Trend Graph

Incident, Host, IP and User Panels

Incident Table

Dynamic – Click to Drill Down

# Risk Dashboard

## User and Entity Risk View

The screenshot displays the FortiSIEM Risk Dashboard interface. At the top, the navigation bar includes 'DASHBOARD', 'ANALYTICS', 'INCIDENTS', 'CASES', 'CMDDB', 'RESOURCES', 'TASKS', and 'ADMIN'. The main section is titled 'Entities by Risk' and shows a summary bar with the following data: 73 Devices, 20 Users, 6 High Risk, 4 Medium Risk, and 83 Low Risk. Below this, there are tabs for 'Overview', 'List', 'Risk', and 'Explorer'. The 'Risk' tab is active, showing a 'Current Risk' of 83 and a '1 day Trend' graph. The 'Incidents in Last 1 day' section lists several incidents, including 'Multiple Admin Login Failures: Net Device', 'Sudden Decrease in Reported Events From A Host', and 'Sudden Increase In Firewall Connections'. The 'Risk Score Trend' graph shows a score fluctuating between 80 and 100 over a 24-hour period. The 'Incident Timeline' section lists several incidents with their respective timestamps and details, such as '(Active) 221.229.172.66 created medium severity Incident Multiple Logon Failures on 192.168.3.1 during Aug 22, 2019 11:03 PM - Sep 11, 2019'. A context menu is open over one of the incidents, listing actions like 'Clear Incident', 'Create Event Dropping Rule', 'Create Ticket', 'Disable Rule', 'Edit Comment', 'Edit Rule', 'Edit Rule Exception', 'Export Incident', 'Notify via Email', 'Remediate Incident', 'Resolve Incident', 'Run External Integration...', and 'Show in Incident List View'. The bottom of the dashboard shows the Fortinet logo, copyright information, organization name, user name, and a footer note: 'Powered by AccelOps, A Fortinet Company 5.2.5 (1727)'.

Summary Bar

Device Risk Score

Click to Action

Device Risk Timeline



# User Entity Behavior Analytics

**FortiSIEM & FortiInsight – Machine Learning to detect anomalous threats**



“There are **known knowns**.  
These are things we know that  
we know.

“There are **known unknowns**.  
That is to say, there are things  
that we know we don't know.

“But there are also unknown  
unknowns. There are things  
we don't know we don't know.”

- Donald Rumsfeld

# FortiInsight Machine Learning

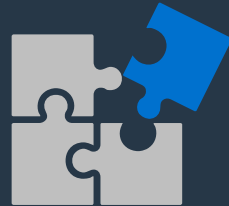
## For Anomalous Behavior Detection

### Machine Learning



- The FortiInsight Machine Learning capability allows users to detect 'unknown unknowns'
- For example: Leavers – Bob is about to leave his job, and his behavior has changed. This is hard to detect with rules alone

### Profile Building



- Builds profiles of normal behavior so that it can detect abnormal behavior

### Easy Setup



- Easy to set up and starts learning user behavior without configuration

### User Tracking



- Uses UBA to track users and detect threats, by looking at patterns of human behavior

# FortiInsight

## Feature Set

### Endpoint Agent



Non-intrusive, lightweight endpoint agent

### Push-Architecture



Rapid deployment and instant protection

### Central Analytics



No need to push policies to endpoints

### Alerting



#### Rules

map policies and compliance into alert

#### Machine Learning

detect anomalous threats

### Network Monitoring



See where your data is going and where it's coming from, even when it's off your corporate network

### Threat Hunting



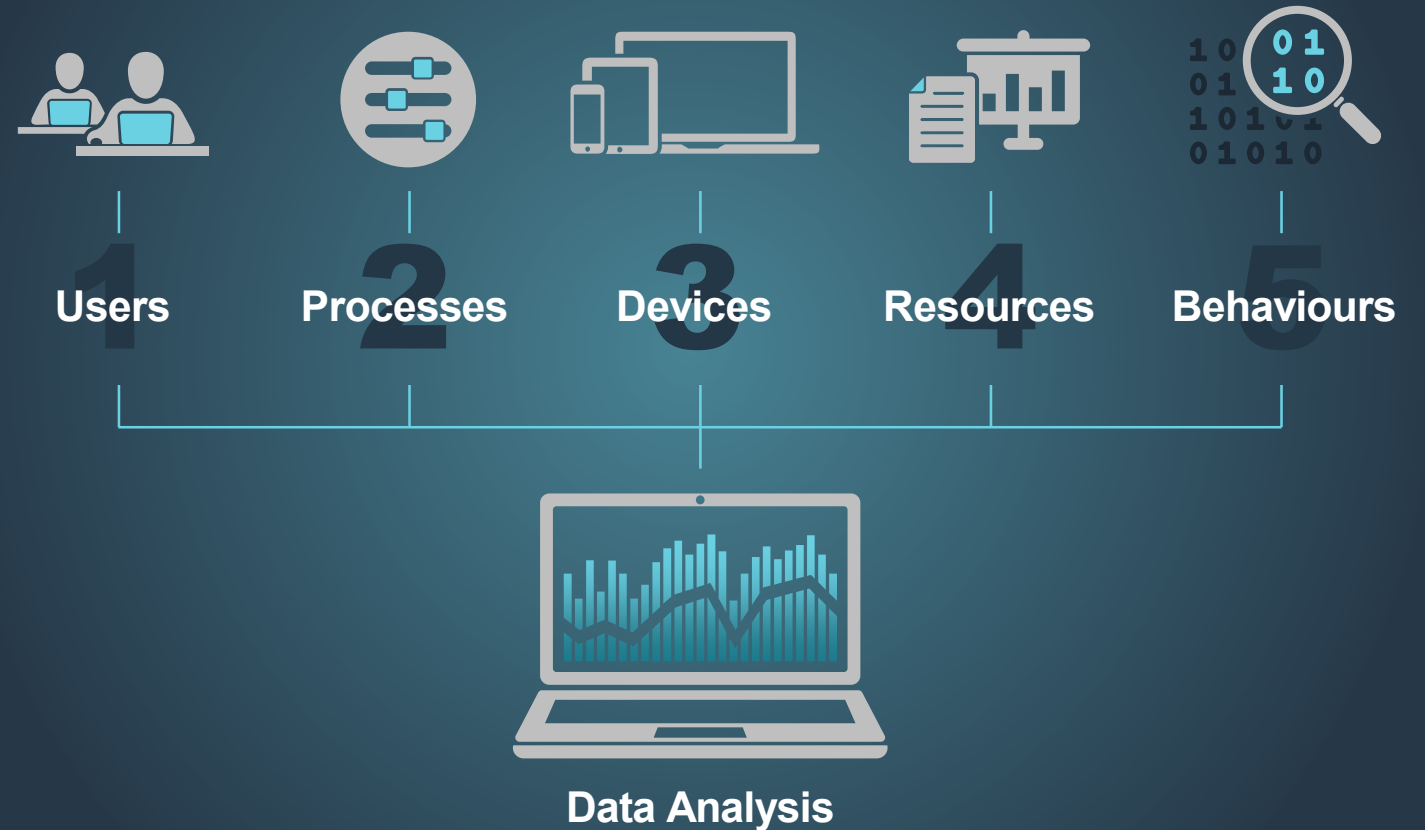
7 day record of all activities

# Unique 5-Factor Telemetry Model

Engineered to detect insider threats

## FortiInsight

Wherever a machine is located and whatever network the machine is connected to, **FortiInsight** captures the key information from 5 anchors to deliver insights built upon, the key metadata and behavior analysis around:

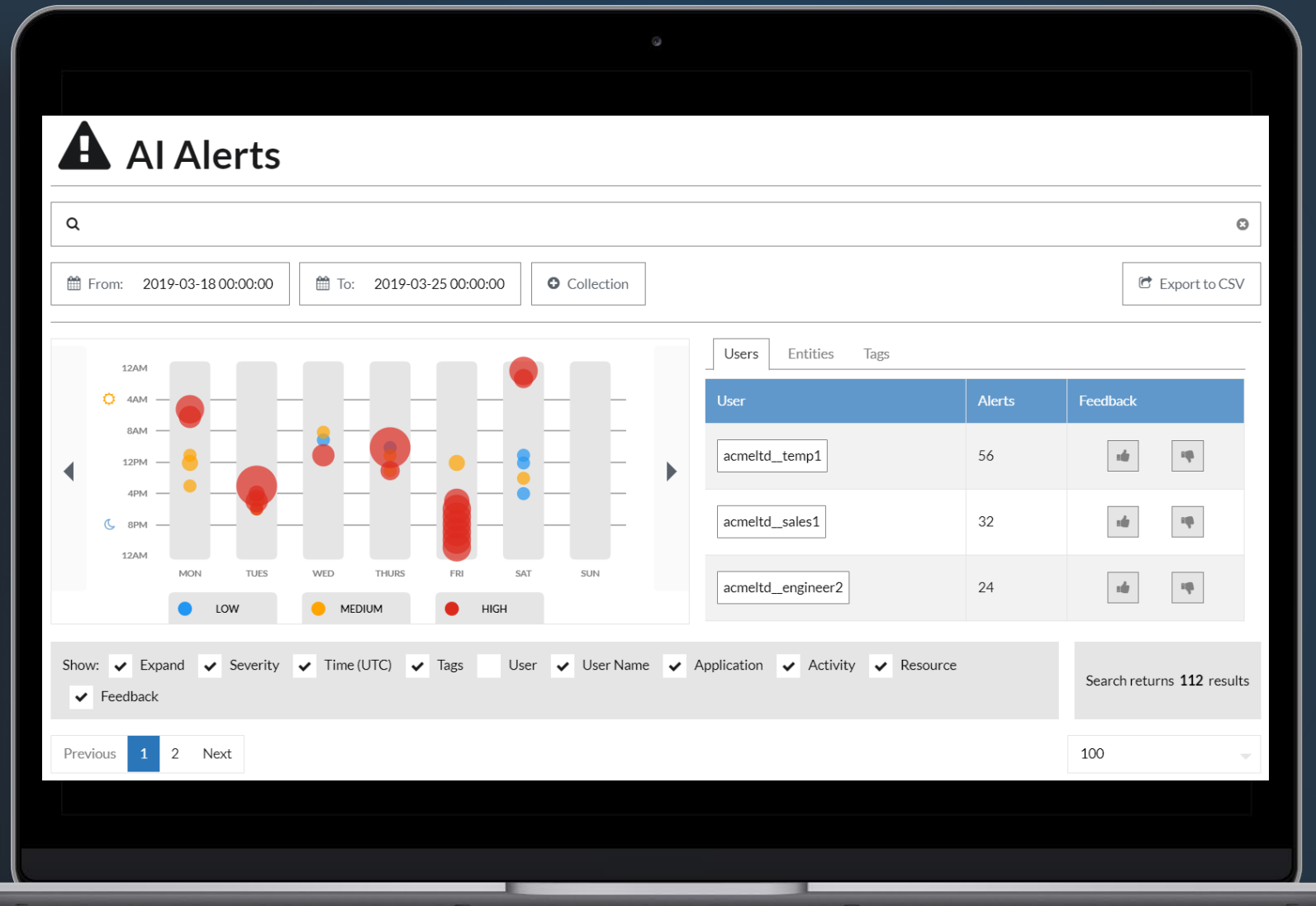




# Machine Learning

## Alerts

- Use Visualization and summary table to find what's important to you
- Users, Entities, Tags for scoping
- Feedback mechanism
- Pivot on Threat Hunting for context



# Threat Hunting

## Your view of events

- Interactive search of the event record
- 7 days of full history
- Summary Tabs – use to refine search
- Event List – sortable and selectable columns

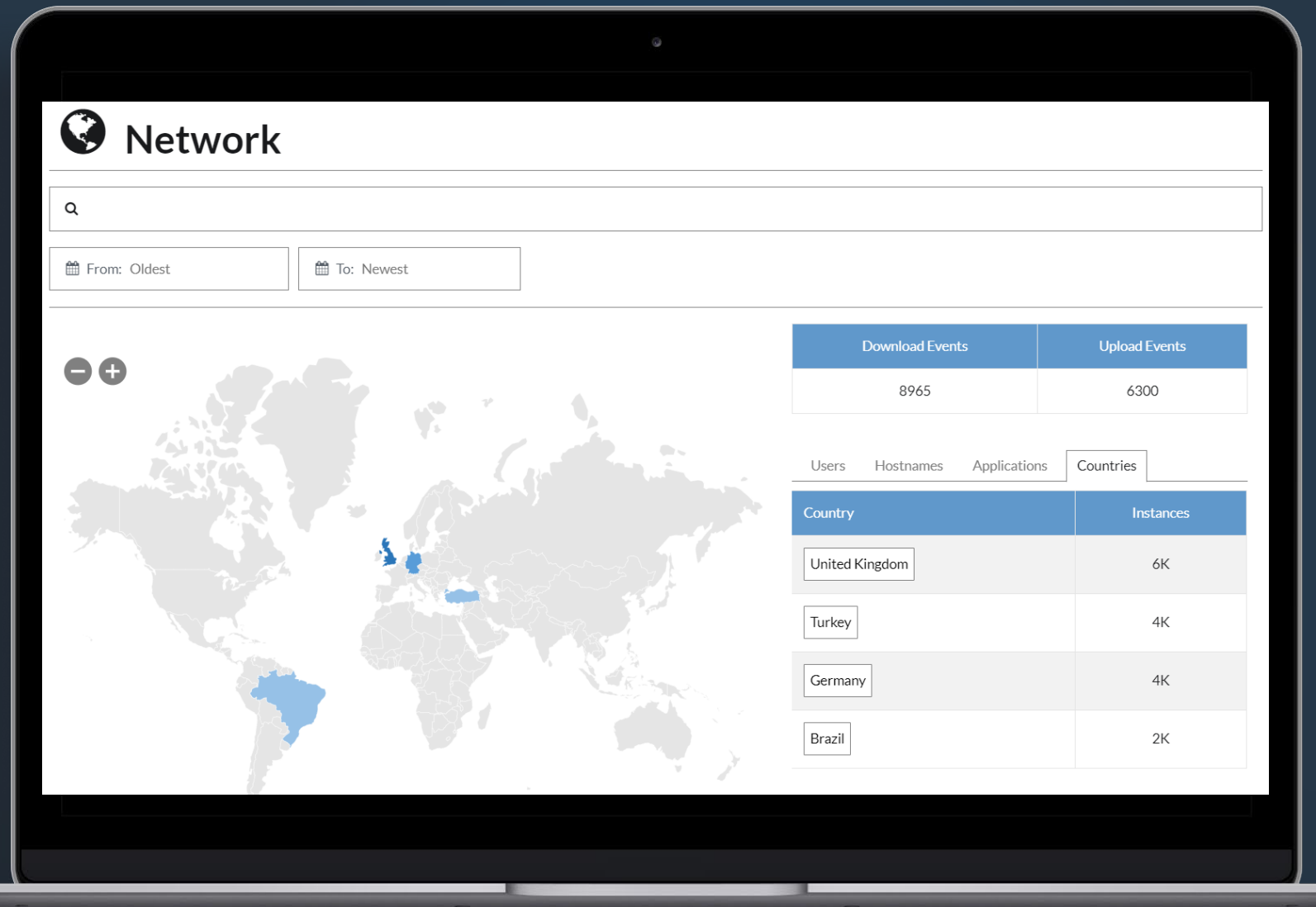
The screenshot displays the Fortinet Threat Hunting interface. At the top, there is a search bar and filters for 'From: Oldest', 'To: Newest', and 'Collection'. A 'Show Summary Tabs' button is visible. Below the filters, a 'Show:' section allows selecting columns to display: Time (UTC), Endpoint, Endpoint Name, User, User Name, Application, Resource, Activity, File, Extension, and Folder. The search returns 36,484 results. A pagination bar shows 'Previous', '1', '2', '3', '4', '5', '6', '7', '8', '9', '10', '11', '12', '13', '14', '15', '... of 365', and 'Next'. A dropdown menu is set to '100'. The main table has the following data:

Time (UTC)	User Name	Application	Resource	Activity
26/02/2019 03:33:31	acmeltd_engineer2	chrome.exe	tcp://savii.torproject.org:443 -> c:\users\administrator\downloads\torbrowser-install-6.5.2_en-us.exe	file downloade
26/02/2019 03:33:56	acmeltd_engineer2	chrome.exe	tcp://savii.torproject.org:443 -> c:\users\administrator\downloads\torbrowser-install-6.5.2_en-us.exe	file downloade
27/02/2019 13:09:35	acmeltd_engineer2	chrome.exe	tcp://savii.torproject.org:443 -> c:\users\administrator\downloads\torbrowser-install-6.5.2_en-us.exe	file downloade
28/02/2019 14:34:10	acmeltd_engineer2	chrome.exe	tcp://savii.torproject.org:443 -> c:\users\administrator\downloads\torbrowser-install-6.5.2_en-us.exe	file downloade

# North/South Data Movement

## Search network events

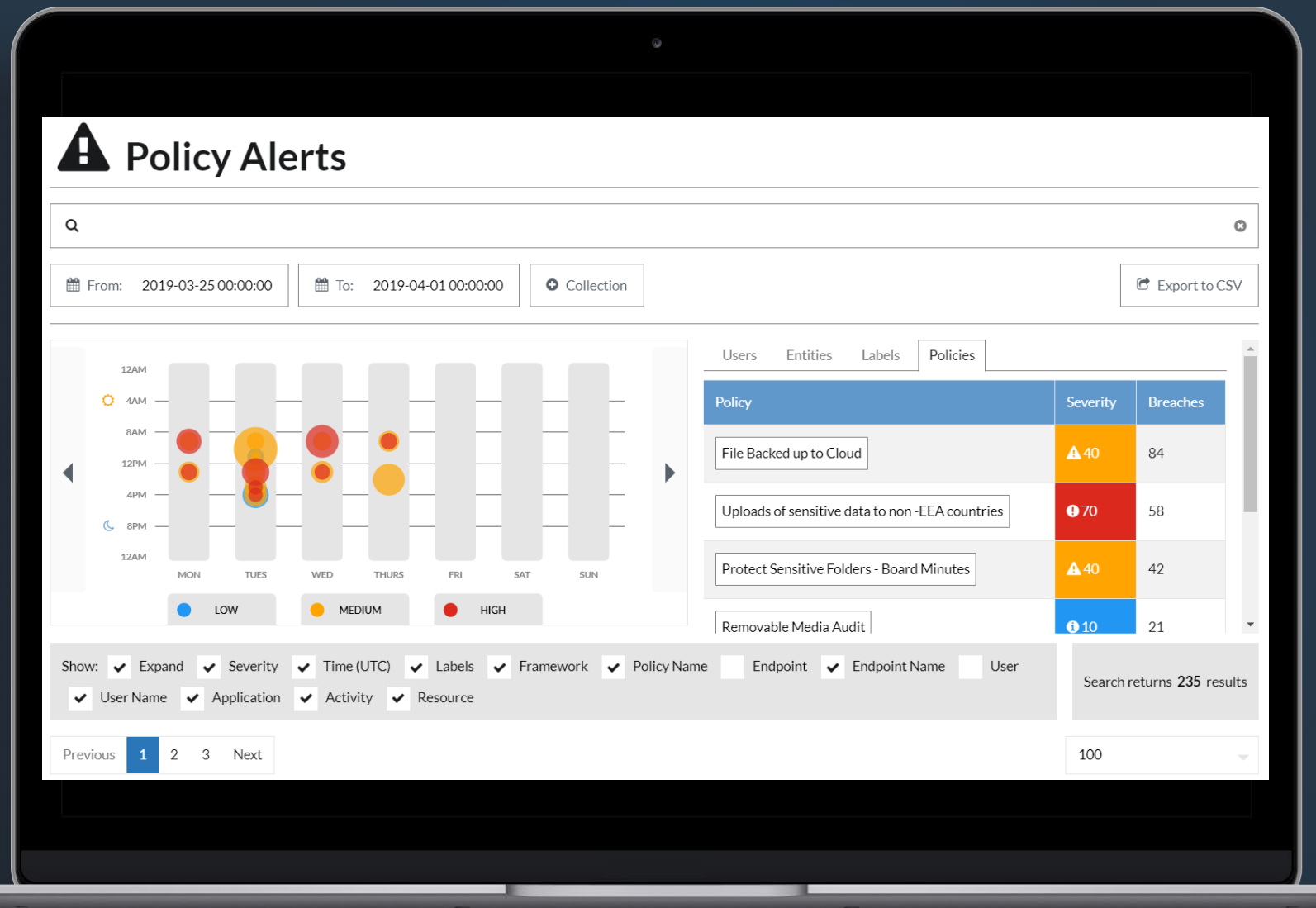
- Map – at a glance data sources\destinations
- View data coming into the organization and leaving it
- Activity search filters on file downloaded\uploaded
- Top users, hostnames, applications, & countries for easy filtering
- Low level event data



# Policies

## Policy Alerts

- Live view of alerts, as they happen
  - Selectable timeframe – date & time range, or selectable week view
- Click on alerts to drill down for event details
  - Packed events
- Filter alerts using search
- Use Summary Table to narrow your search
  - User
  - Entities
  - Labels
  - Policies
- Pivot to Threat Hunting
  - Gain context
- Export data as csv



# FortiSIEM - ADC integration

## Challenges

- Need to add servers as apps grow
- Ensure application availability
- Maximize server utilization
- Need to inspect encrypted traffic

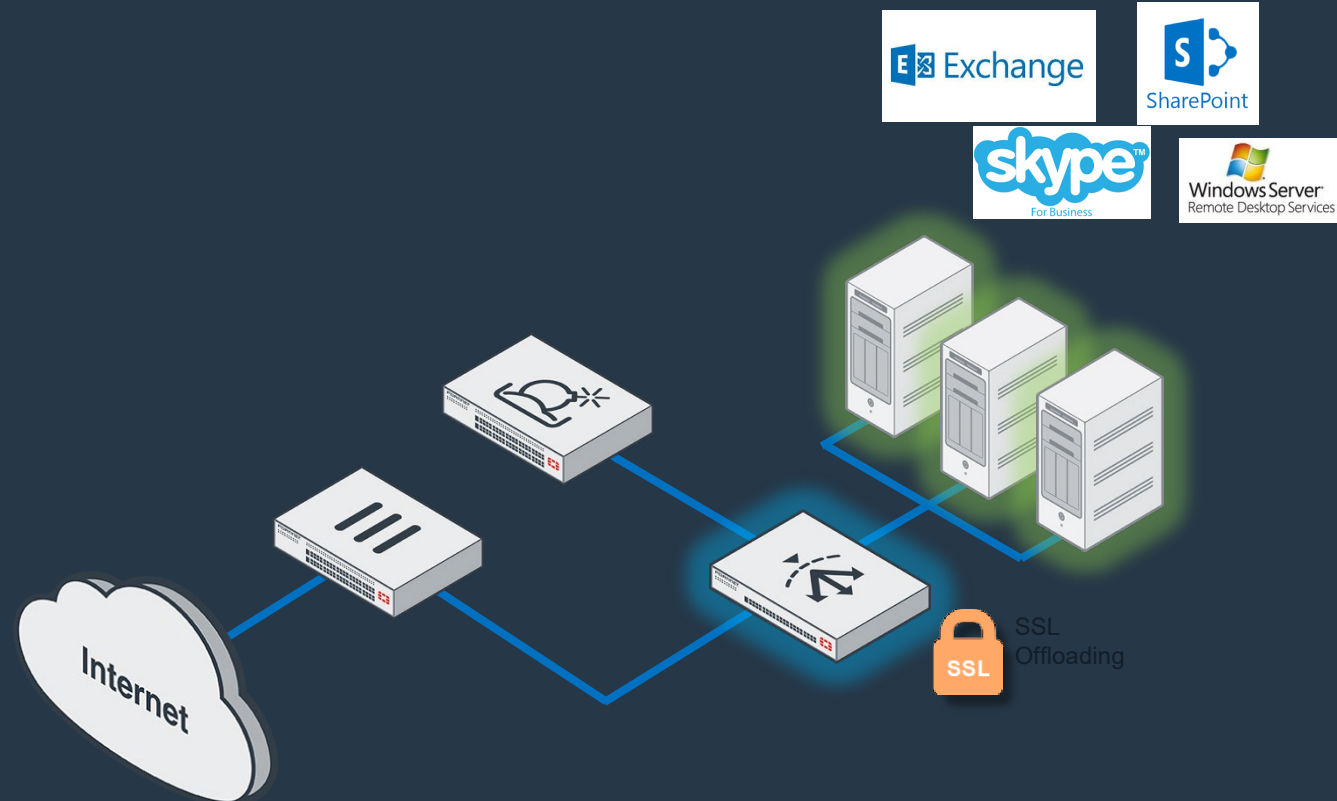
## Solution

### FortiADC Application Delivery Controller

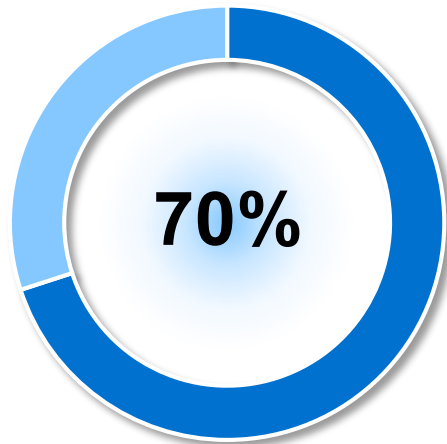
- Server Load Balancing
- Health checking
- Persistence
- SSL Offloading

### Advantages

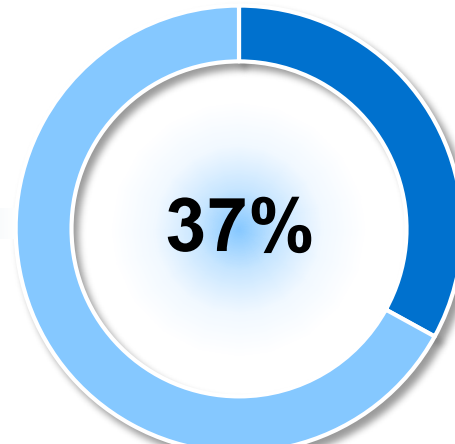
- Add multiple servers to meet needs
- Users see increased response and uptime
- Up to 25% increase in per server capacity



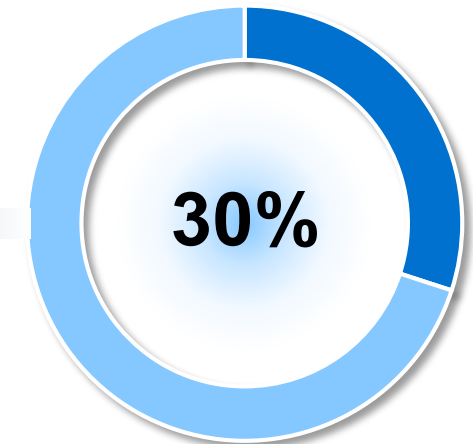
# FortiSIEM - SD-WAN monitoring



Percentage of application have already moved to cloud

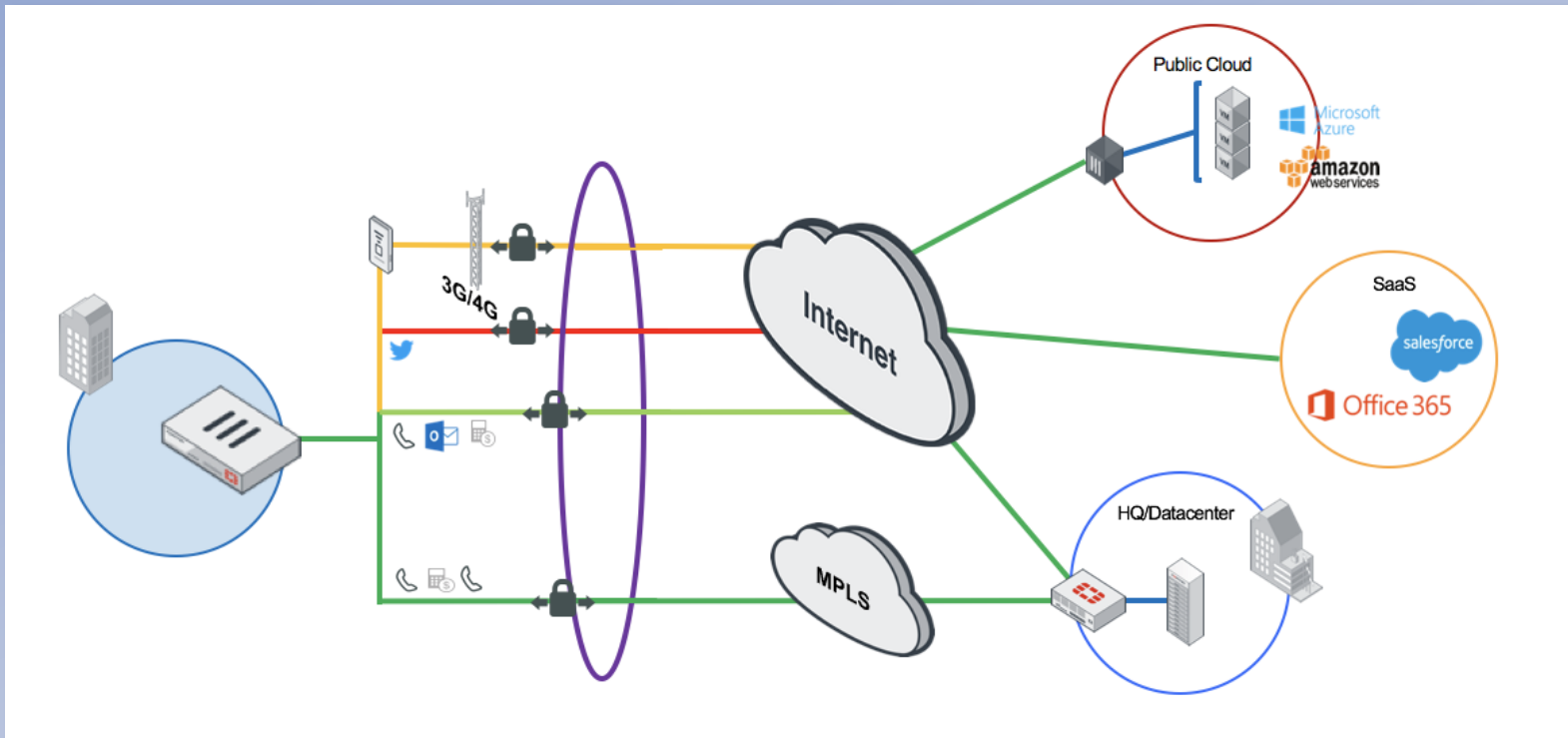


Considered SaaS Easier to Deploy vs On Premise Applications



Lower user acceptance for SaaS applications

# Dynamic WAN Path Controller and Measurement

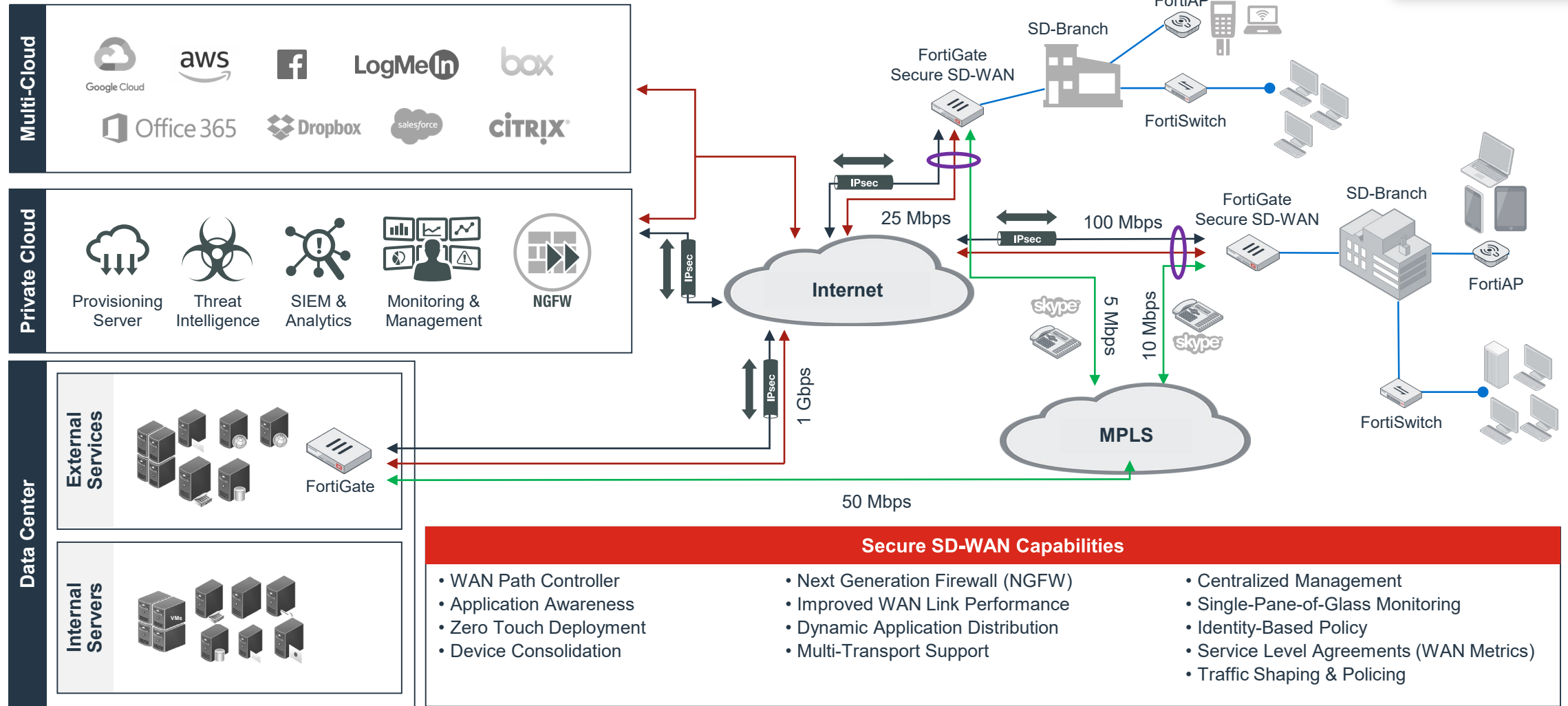
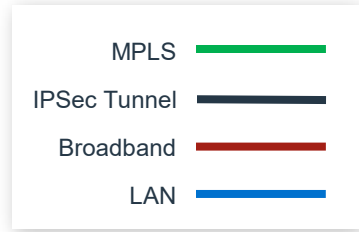


Application Steering

WAN Path Measurements

Dynamic Application Fail-over

# Simplify with Secure SD-Branch



- ### Secure SD-WAN Capabilities
- WAN Path Controller
  - Next Generation Firewall (NGFW)
  - Centralized Management
  - Application Awareness
  - Improved WAN Link Performance
  - Single-Pane-of-Glass Monitoring
  - Zero Touch Deployment
  - Dynamic Application Distribution
  - Identity-Based Policy
  - Device Consolidation
  - Multi-Transport Support
  - Service Level Agreements (WAN Metrics)
  - Traffic Shaping & Policing



**F**ORTINET®