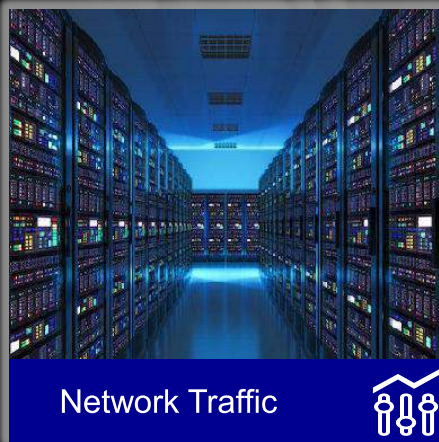


# Maser NetworkiQ

Analyse, Act, Review. Intelligently



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# Top Network Intelligence Use Cases for Education

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# Sandvine's Education Value Propositions



Encrypted Application Visibility



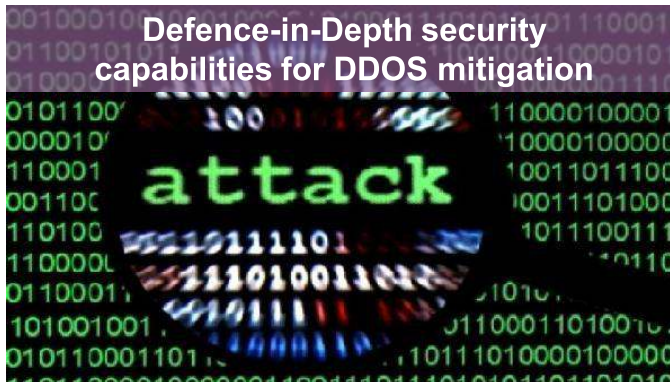
Real-Time network visibility



User, service, location, IoT and Mobile device-awareness



Flexible traffic management technologies to enhance QoE



Defence-in-Depth security capabilities for DDOS mitigation























Massively scalable Content Filtering



# Sandvine's Library of Education Use Cases

## Most Comprehensive Set of Use Cases

<b>REAL-TIME VISIBILITY</b>  Real-time forensics with topology awareness	<b>CONGESTION MANAGEMENT</b>  Sophisticated queuing to enhance QoE	<b>FAIR USAGE</b>  Service plan awareness for fair usage during congestion	<b>LOCATION-BASED SERVICES</b>  Location aware services for better network QoE (i.e. dorm vs. classroom)	<b>SERVICE LEVEL AGREEMENTS</b>  QoE delivery based departmental SLAs
<b>ANALYTICS AND TRENDING</b>  User, application, location and device reporting and forecasting	<b>CUSTOMER CARE</b>  Network forensics in real-time for problem resolution	<b>USAGE MANAGEMENT</b>  Volume-based limits on user consumption of bandwidth	<b>SERVICE PACKAGES</b>  Manage IoT deployments for security and cost containment	<b>INTELLIGENT CHARGING</b>  Differentiated charge-back billing based on users
<b>TIERED SERVICES</b>  Differentiated services for role-based usage	<b>PEERING</b>  BGP peering analytics and management	<b>THREAT MITIGATION</b>  Fine-grained traffic mitigation for DDOS attacks	<b>VIRTUAL NETWORKS</b>  Virtual network deployments to lower costs	<b>TRAFFIC STEERING</b>  Selective value added services Traffic Steering
<b>URL CATEGORIZATION</b>  URL categorization based on a set of predefined rules	<b>OTT MANAGEMENT</b>  Managing the impact of OTT traffic on EDU networks	<b>CGNAT</b>  CGNAT for large-scale deployments to simplify network design	<b>MULTI-ACCOUNT PLANS</b>  Combined Wi-Fi + Fixed user packages	<b>ENTERPRISE CONTENT CONTROLS</b>  Content management for minors and business policy



# Sandvine's Technology



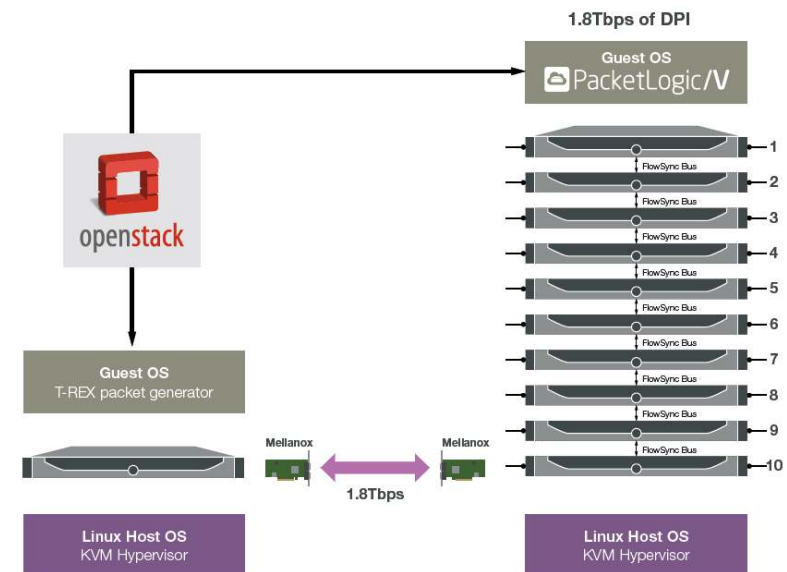
# Key Technology: Virtualized Platform

## Highly scalable virtual and cloud deployments

- **Over 50** tier one and tier two operator **installs**, more as vCPE
- **FlowSync & QueueSync** – efficient scaling
- **NIA-EANTC verified interoperability** with major cloud platform providers
- **Openstack Support**
- **VMware NFV-Infrastructure support**
  - vCenter and vSphere
  - vHW v11, v10 and v9
  - Support for OVF, vSwitch
  - VMware ESXI 5.5, 6.0 and 6.5
- **RedHat/Linux NFV-Infrastructure support**
  - KVM
  - RedHat enterprise virtualization (RHEV 3.5)
- **Feature and performance parity** with HW appliance platforms
- 1 – 100G NIC accelerated drivers support on COTS HW



PL/V Tested with 1.8Tbps on COTS today





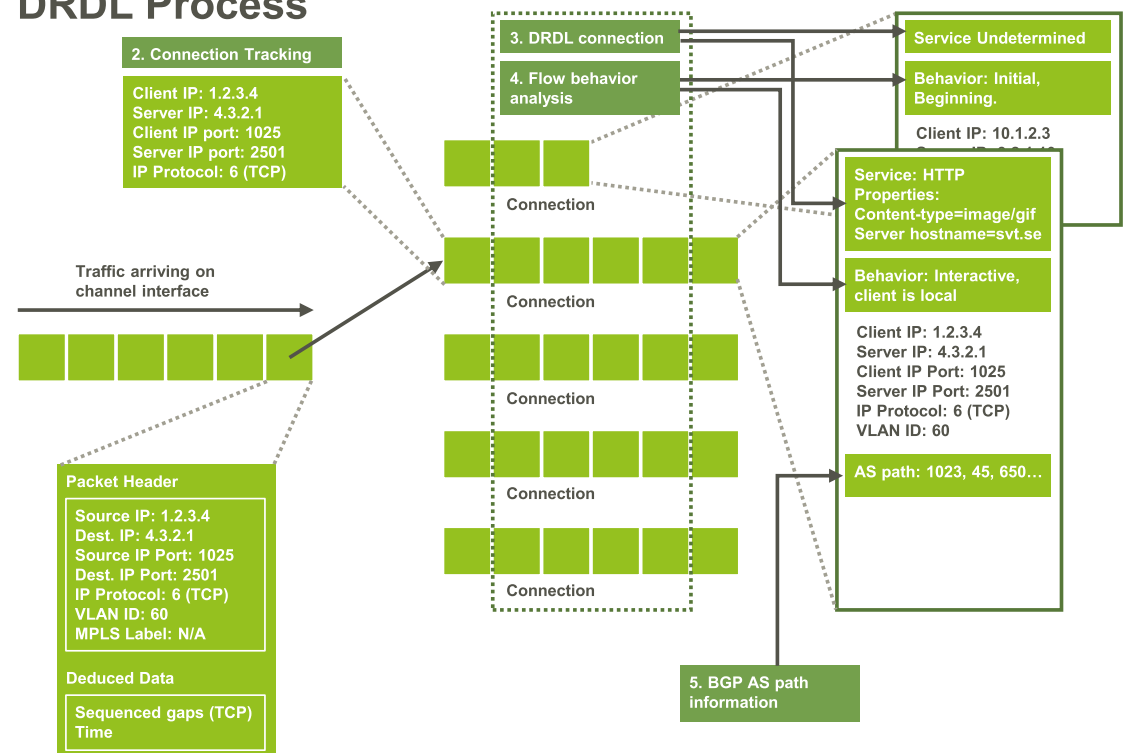
# Key Technology: DRDL Engine

## Application Identification for even encrypted traffic

### Industry Leading Signature Database

- Over 3000 signatures today across multiple application categories
- Sophisticated encryption heuristics engine with over 50% of signatures for encrypted traffic detection
- Behavior flags to enable management of even unknown traffic based on traffic characteristics (random-looking, download, etc.)
- Weekly updates to keep pace with the rapid pace of new applications on the Internet
- FlowSync and QueueSync for multi-box session synchronization

### DRDL Process

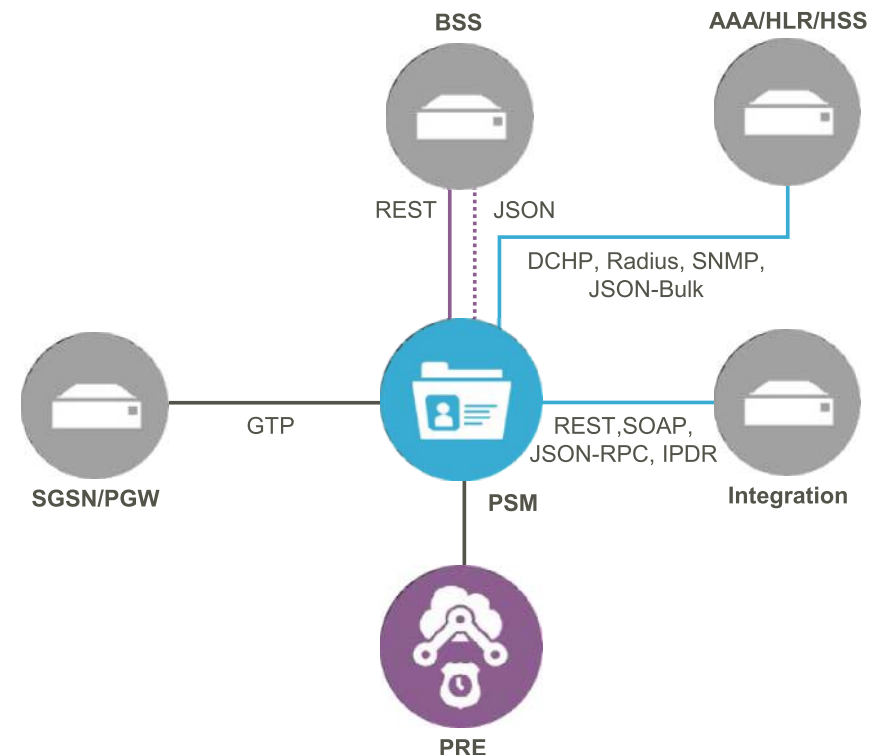


# Key Technology: Subscriber Enrichment

Enabling real-time contextual analytics and actions

## Multiple APIs for enrichment

- Push and Pull APIs to feed User DB
  - DHCP
  - REST
  - JSON-Bulk
  - SOAP
  - RADIUS
  - Topology DB
  - IPDR
  - Custom Integration
  - JSON-RPC
- User DB enriched with
  - Subscriber ID
  - Access Type
  - Location
  - Device Type
  - Service Plan
  - Other subscriber attributes





# Analytics Use Cases

# Performance and Operational Monitoring

## Granular network visibility in real-time

### Use Case Need

Detect anomalies, monitor service availability, diagnose issues, and troubleshoot problems in real-time by carefully monitoring network performance and crucial quality indicators

### Network Users

Network Operations  
Customer Care

### Business Value

Real-Time RCA  
Interactive network analysis  
CAPEX Reduction and/or Delay



Analytics

### Key Technologies

Real-time high granular KQI data  
High performance enabling full coverage monitoring in virtualized package.  
Flexible real-time and historical APIs for Big Data system integration

### Unique Value Proposition

Sandvine's Performance and Operational monitoring delivers unique real-time data feeds for the critical KQIs required to accurately diagnose network performance and quality issues



# Engineering Insights

## Executive Overview

- High Level view of network performance
- Easy to understand application groupings

## User Tier Reports

- How different user groups are consuming network resources

## Usage Overview

- How usage is being consumed by the heavy users on the network

## Location and Quality

- Visualize location-based usage QoE metrics



# Service and Subscriber Monitoring

## Proactive subscriber quality monitoring

### Use Case Need

Proactively prevent user issues and reactively diagnose problems by measuring and monitoring individual user and service quality metrics in real-time

### Network Users

Customer Care  
Network Operations

### Business Value

Differentiated customer experience  
Improved subscriber Quality of Experience



**Analytics**

### Key Technologies

ScoreCard QoE metrics

Outlier Analytics

High performance enabling full coverage monitoring in virtualized package.

Flexible real-time and historical APIs for Big Data system integration

### Unique Value Proposition

Sandvine's Service and Subscriber monitoring solution delivers unique subscriber QoE metrics applied to the applications that subscriber measure their experience by - video, web, social, VOIP, gaming, upload, and download.





# Custom Analytics Dashboards

Real-time data feeds for actionable intelligence use cases

## Use Case Description

- Real-Time API support for creating closed loop network GUIs and portals
- Historical and real-time access to contextual network and subscriber intelligence for internal dashboards

## Business Value

- Standards-based integration into existing network portals for better user and application visibility
- Unique contextual real-time data on network performance and consumption



**Analytics**

## Key Sandvine Technologies

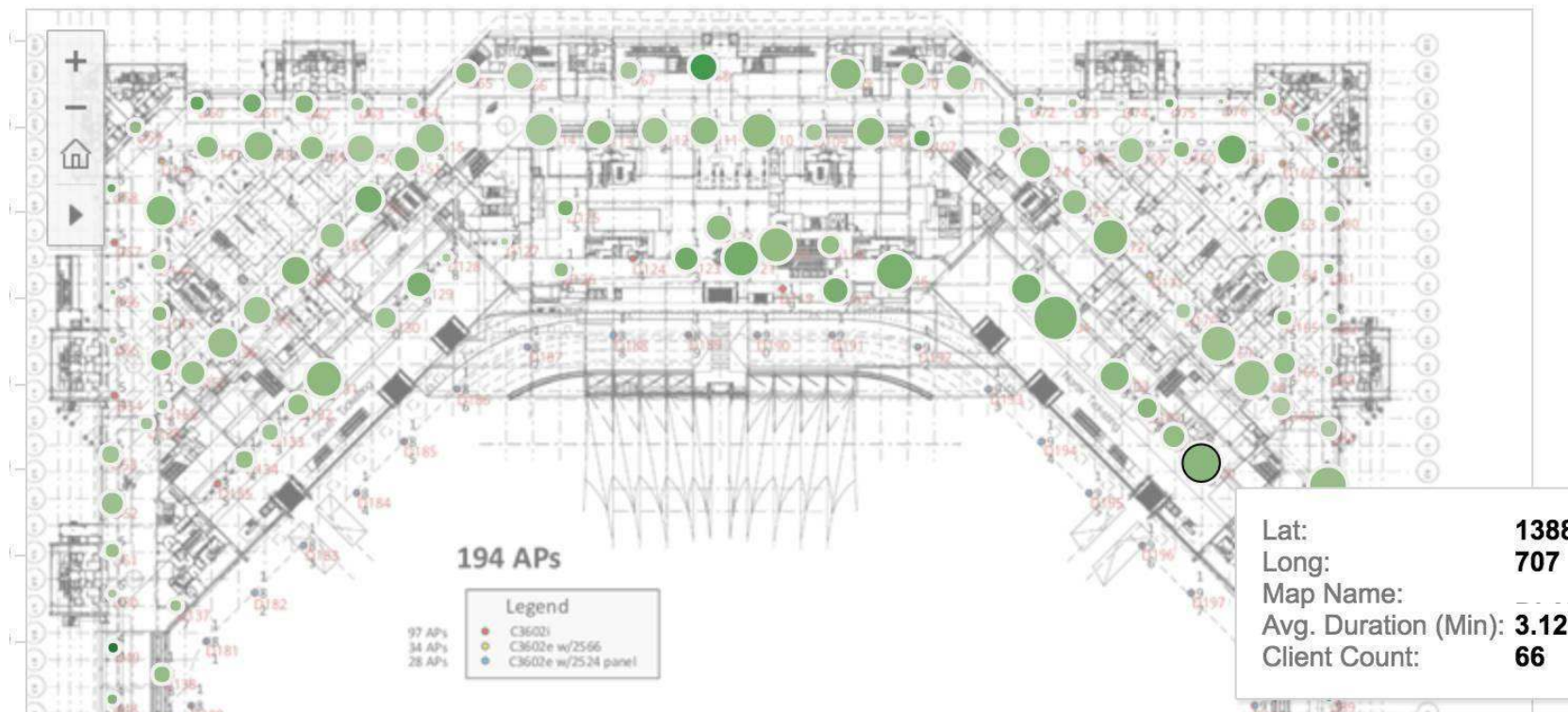
- Flexible collection of APIs that provide multiple options for admin to leverage existing solutions
- Dynamic LiveView with per-subscriber, per-session real-time visibility

## Unique Value Propositions

- Websocket LiveView API with real-time user session data
- Experienced Professional Services partners with product set to meet your requirements



# Analytics for Enterprise WiFi



- Measure footfall patterns
- Measure wait times
- Measure quality of services running over the WiFi network
- Custom build analytics for the enterprise

# Redefining Secondary Storage

Roland Browne, Systems Engineer, Cohesity

Alex Vasilovski Account Executive, Cohesity

The Cohesity logo is displayed on a dark gray background. It features the word "COHESITY" in a white, sans-serif font. The letter "S" is highlighted in a bright green color. To the left of the text, there is a vertical green bar that extends from the top to the bottom of the slide.

# COHESITY

Hyperconverged Secondary Storage

WHY

HOW

WHO

AGENDA



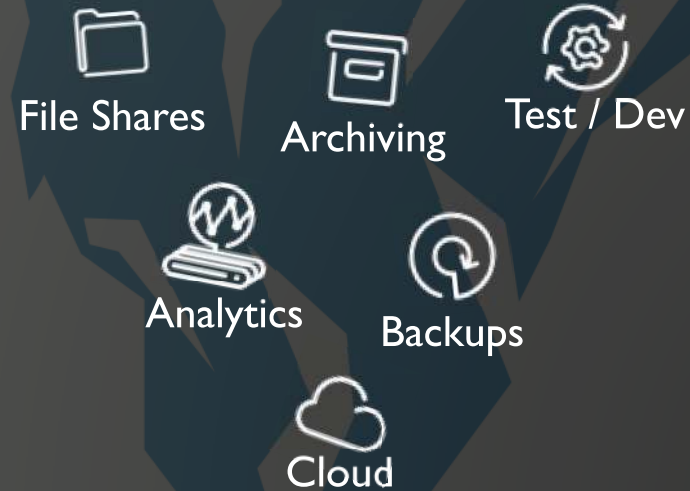
# WHY

# The Storage Iceberg

Primary Storage → Mission Critical

Fragmented  
Inefficient  
Dark Data

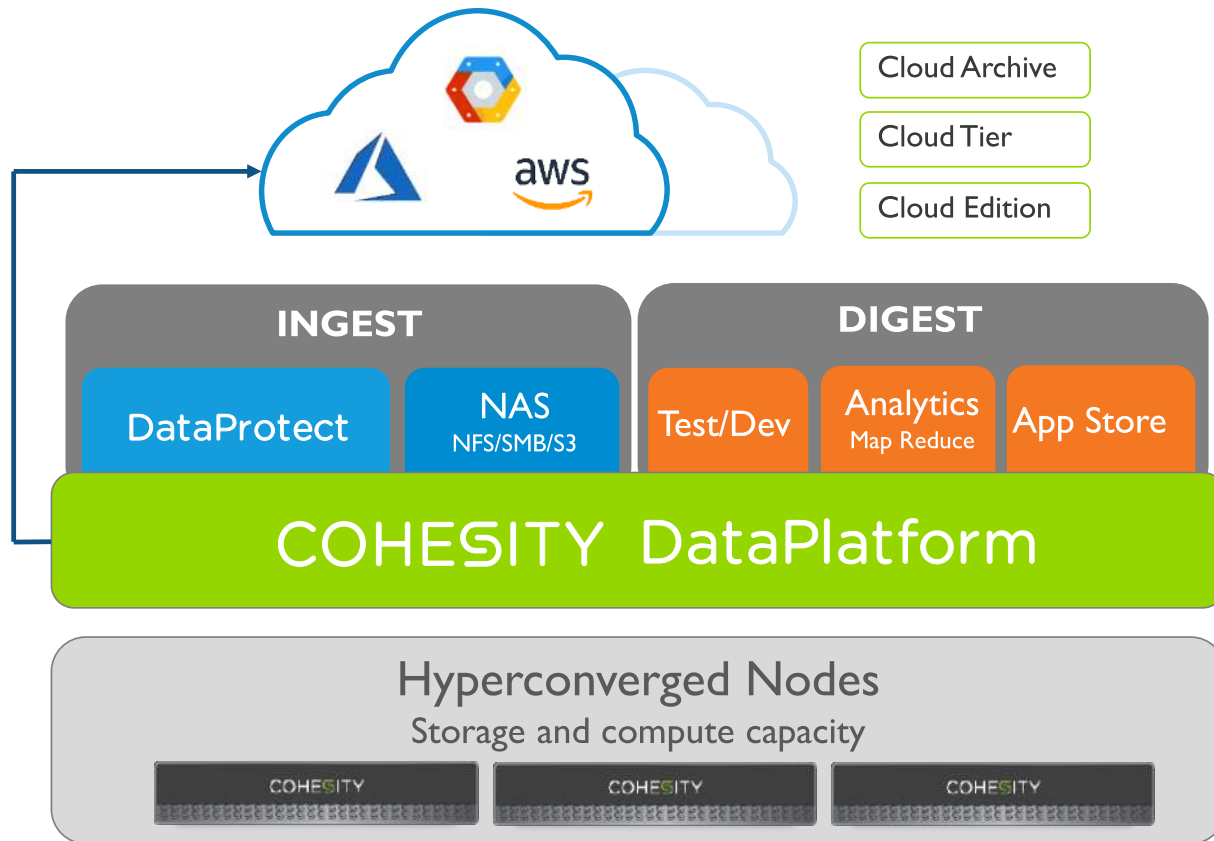
Secondary Storage



# HOW

# Cohesity DataPlatform

*Web-scale platform designed to consolidate secondary data and workflows*

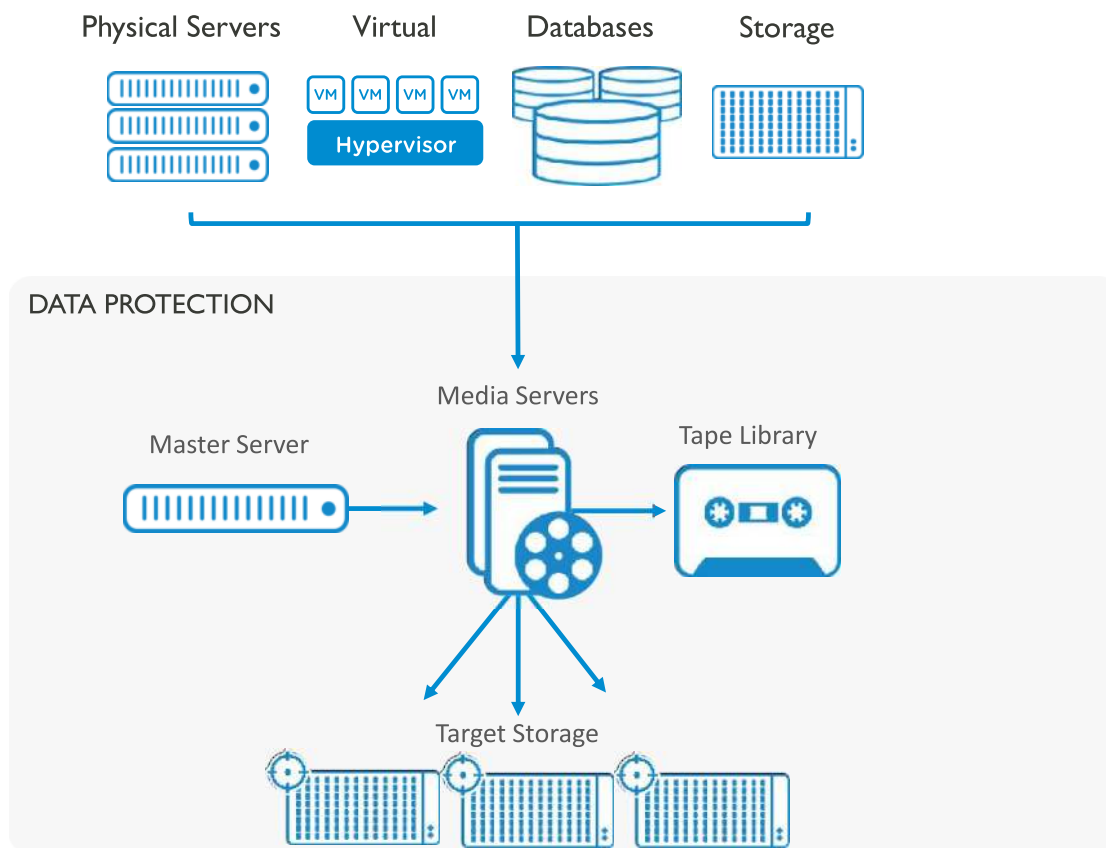


- ✓ Distributed, web-scale architecture
- ✓ Inbuilt Data Protection Software
- ✓ Global dedupe & compression
- ✓ Support for NFS, SMB and S3
- ✓ Sub minute RPO
- ✓ Near Instant RTO
- ✓ Multitenancy & QoS
- ✓ Encryption
- ✓ Remote replication
- ✓ Public cloud integration



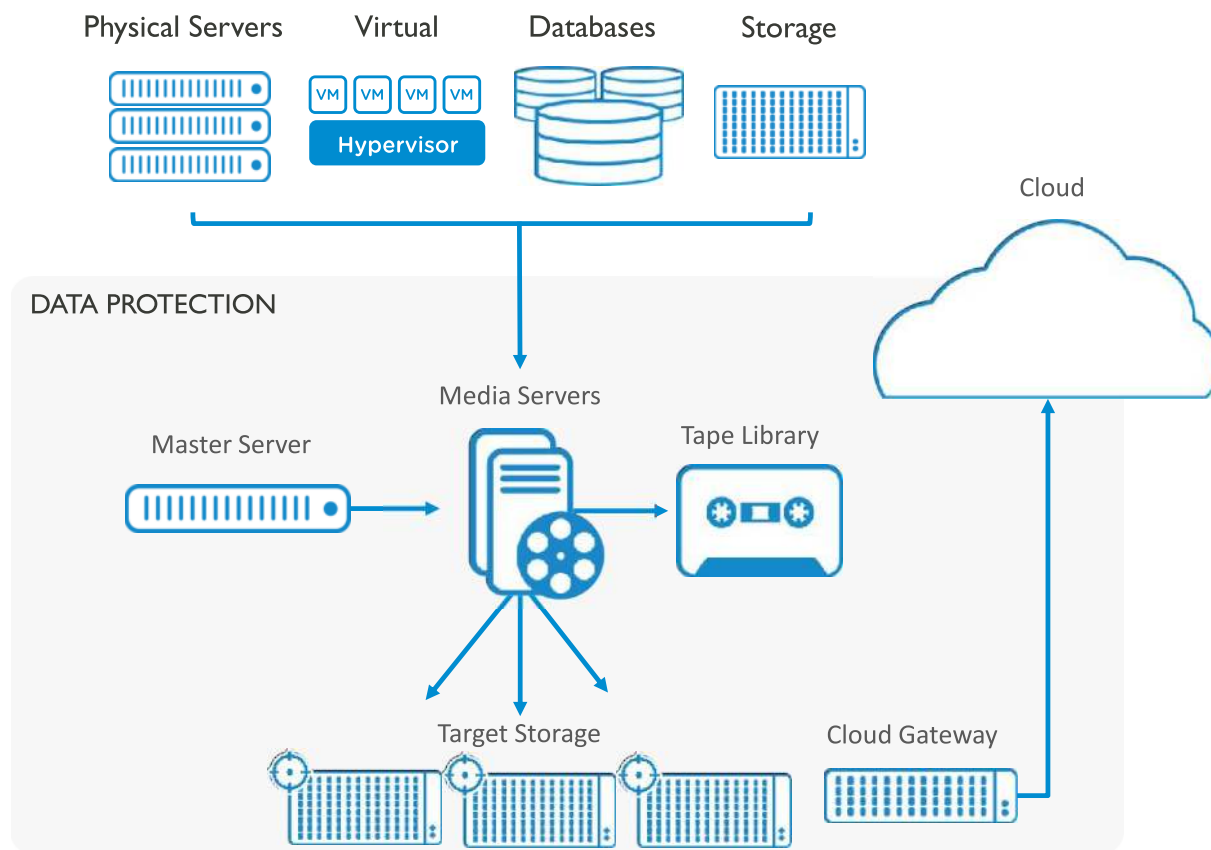


# Today's Data Protection



- **Fragmented**
  - Multiple Components
  - Multiple Vendors
- **Inefficient**
  - Multiple copies of identical data
- **Dark Data**
  - Inability to view/discover

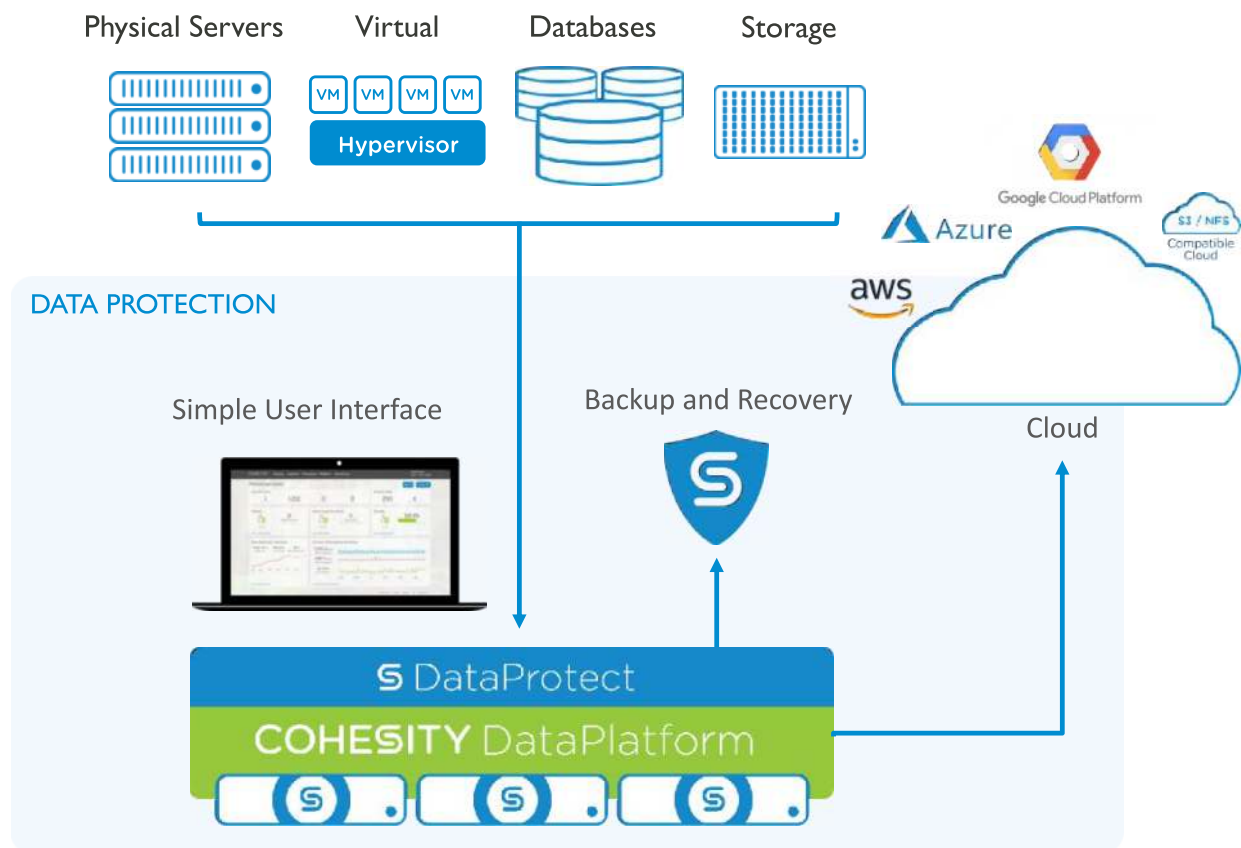
# Today's Data Protection



## Limited cloud integration

- Bolt-on gateways
  - Additional hardware
  - Additional licenses
- Archival only
  - Limited use case

# Simplify Data Protection with Cohesity

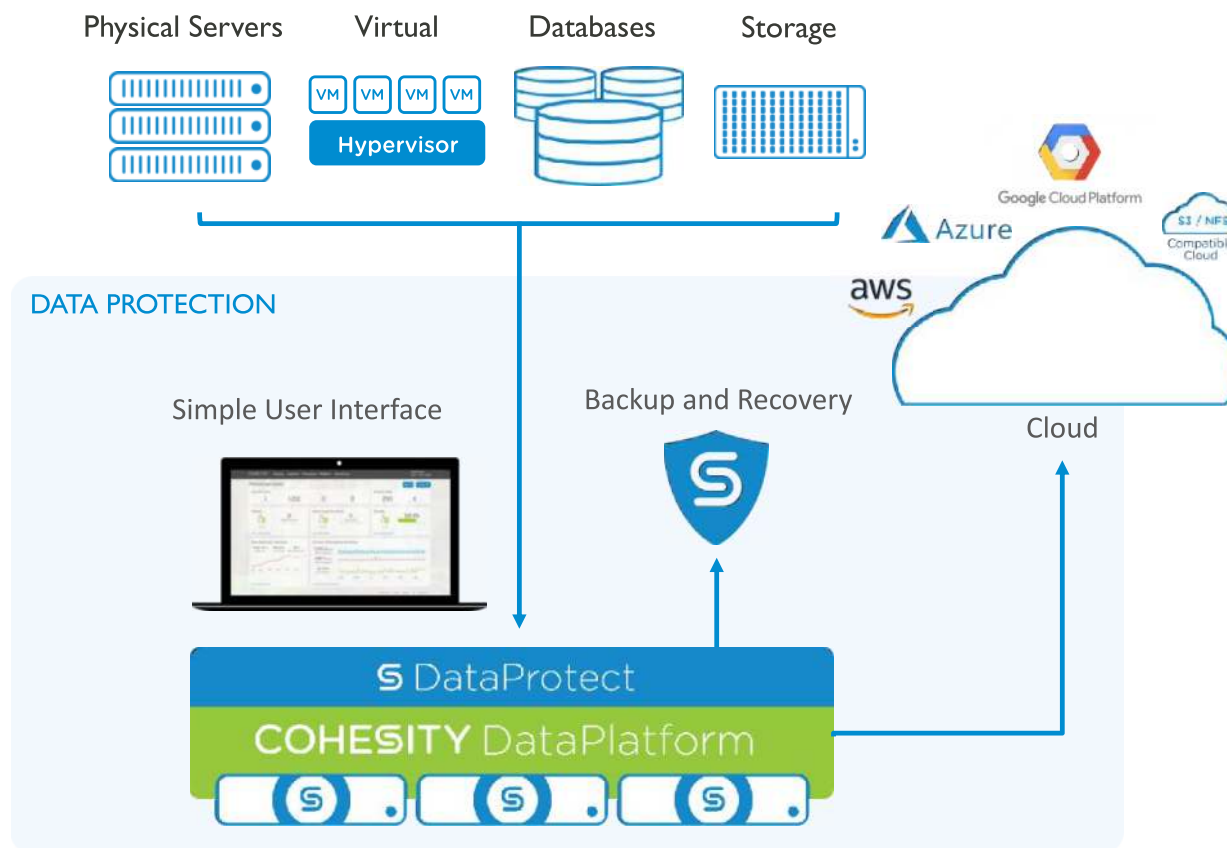


## Simple

- Converged data protection
- Single user interface
- Scale-out platform
- Multicloud (AWS, Azure, GCP)
- Non-disruptive expansion



# Simplify Data Protection with Cohesity

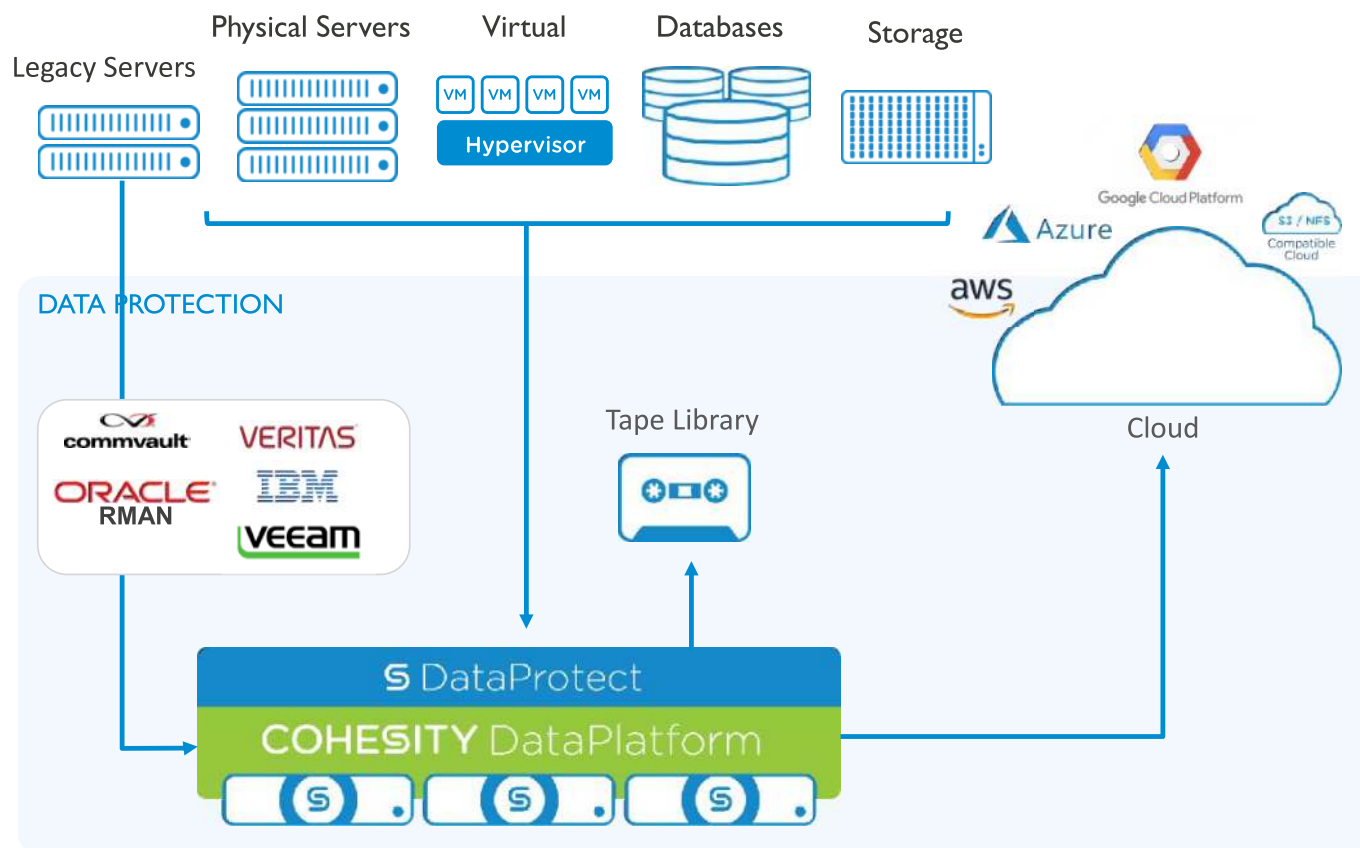


Enterprise ready

- Remote replication
- Software-based encryption
- Remote / Branch Office



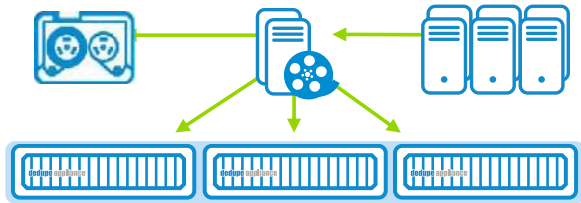
# Integrates with Existing Infrastructure



No rip-and-replace

- Target storage for existing backup
- Tape libraries

# Converged Data Protection



✗ Multiple product silos

✓ Converged, scale-out platform

✗ Complex management

✓ Simple management

✗ Fragmented deduplication

✓ Global deduplication

✗ Slow RPOs and RTOs

✓ <5 minute RPOs, near-instant RTOs

✗ Disruptive upgrades & expansion

✓ Non-disruptive upgrades and expansion

✗ Limited cloud integration

✓ Native cloud integration

# Secondary Storage Market Ready for Disruption

Strategic Planning Assumption

**Gartner**<sup>®</sup>

**“By 2021, more than 80% of enterprise data will be stored in scale-out storage systems in enterprise and cloud data centers, up from 30% today.”**

**“By 2021, 50% of organizations will augment or replace their current backup application with another solution, compared to what they deployed at the beginning of 2017.”**

# WHO

# Who is Cohesity

## PROFILE

- Mission to Redefine Secondary Storage
- Founded in 2013 by Mohit Aron
  - Lead developer Google File System (2003-2007)
  - Co-founder & CTO of Nutanix (2009-2013)
- Experienced team
  - Nutanix, Google, VMware, EMC, NetApp
- Headquartered in San Jose, CA
  - ~600 employees in US, EMEA, and APAC
- Top-tier investors



# Experienced Leadership Team

Industry Experts from Google, Nutanix, VMware, NetApp, Riverbed



Mohit Aron  
Founder & CEO

Google NUTANIX



Rob Salmon  
COO



Apurv Gupta  
Chief Architect

Google



Lynn Lucas  
CMO

VERITAS cisco



Vineet Abraham  
VP Engineering

riverbed



Mark Parrinello  
WW Sales

nimble storage



Lorenzo Montesi  
VP Finance

vmware



Andy Dobrov  
VP Support

FireEye EMC



Dan Warmenhoven  
Board Member



Bill Coughran  
Board Member

Google



Carl Eschenbach  
Board Observer

vmware





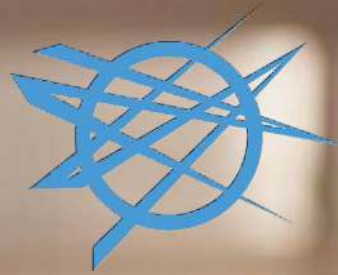
Thank You!

Visit [www.cohesity.com](http://www.cohesity.com) for more information



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# MASER



## Thank You

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