VERSATILITY

Observability & Insights for Network Operations

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Agenda

- Challenges with Observability solutions
- Versa’s Observability solution
- Observability driven insights
- Observability components
- Conclusion
- Demo
- Q&A

Observability Challenges: Scale

Massive telemetry + distributed systems = complexity, cost, and noise

Data Explosion & Cost

- Logs, metrics, traces at massive scale
- High storage and compute cost
- Retention vs cost trade-offs

Signal vs Noise

- Too many alerts, low signal
- Alert fatigue
- Hard to extract insights

Distributed Complexity

- Logs from disparate sources
- Difficult end-to-end tracing
- Complex dependencies

High Cardinality

- User/device/IP explosion
- Query performance impact
- Indexing overhead

Observability Challenges: Fragmented Landscape

Multiple tools and vendors lead to siloed data, higher cost, and poor visibility

Multi-Vendor Monitoring

- Different tools for network, app, security
- Lack of standardization
- Integration complexity

Multiple Panes of Glass

- Separate dashboards
- No unified view
- Slower troubleshooting

Visibility Gaps

- Siloed data
- Hard correlation
- Missed insights

Cost & Complexity

- Multiple licenses
- Duplicate storage
- Operational overhead

Versa’s Observability Solution

Unified platform, policy, data lake & console for centralized visibility

End-to-end optimization across data collection, processing, and analysis

Rich, context-aware telemetry generated at the source

Enhanced correlation & faster detection through augmented telemetry

Minimizes deep log analysis and manual investigation effort

High-level actionable insights & alerts instead of raw data noise

Observability driven insights

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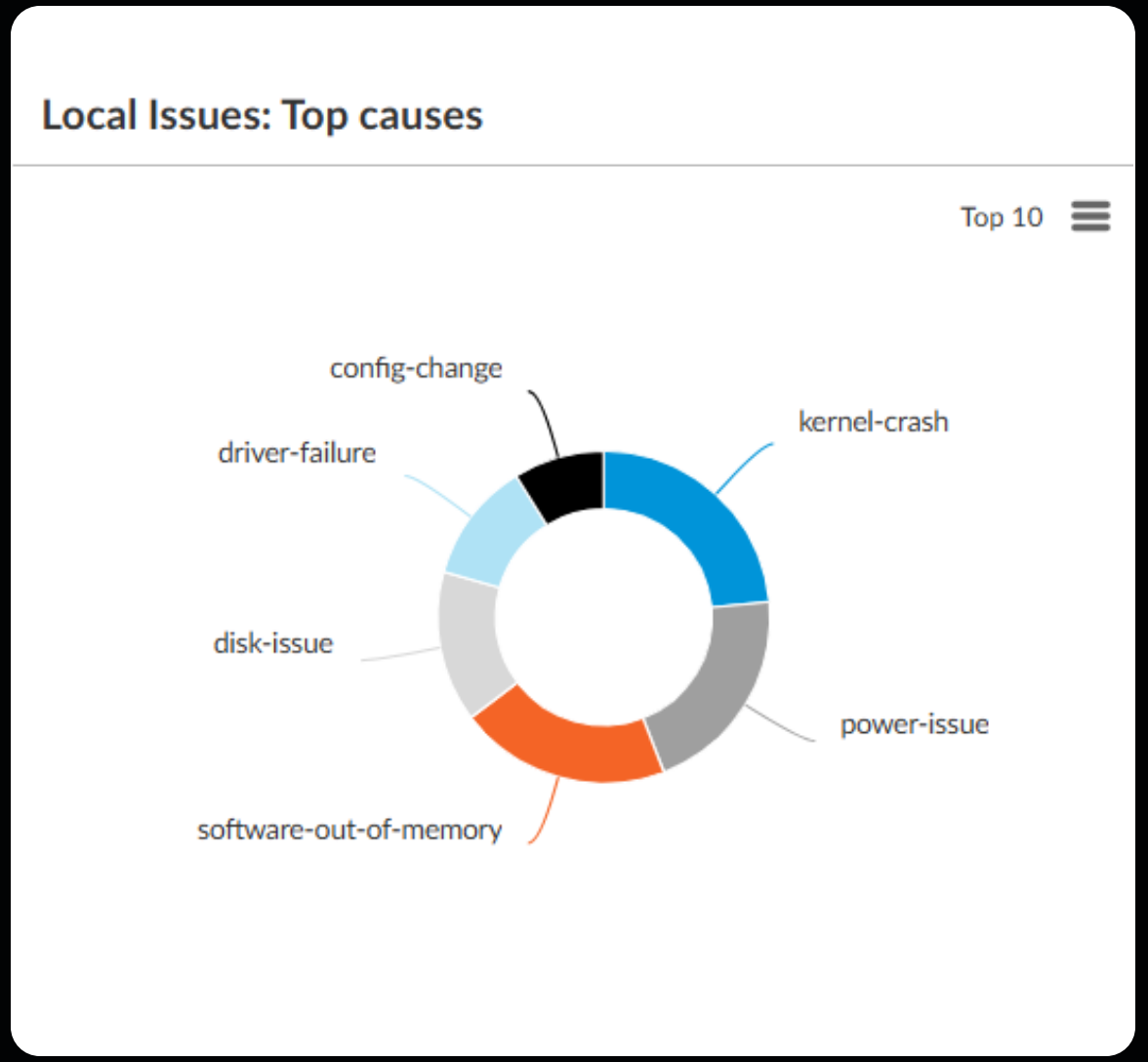
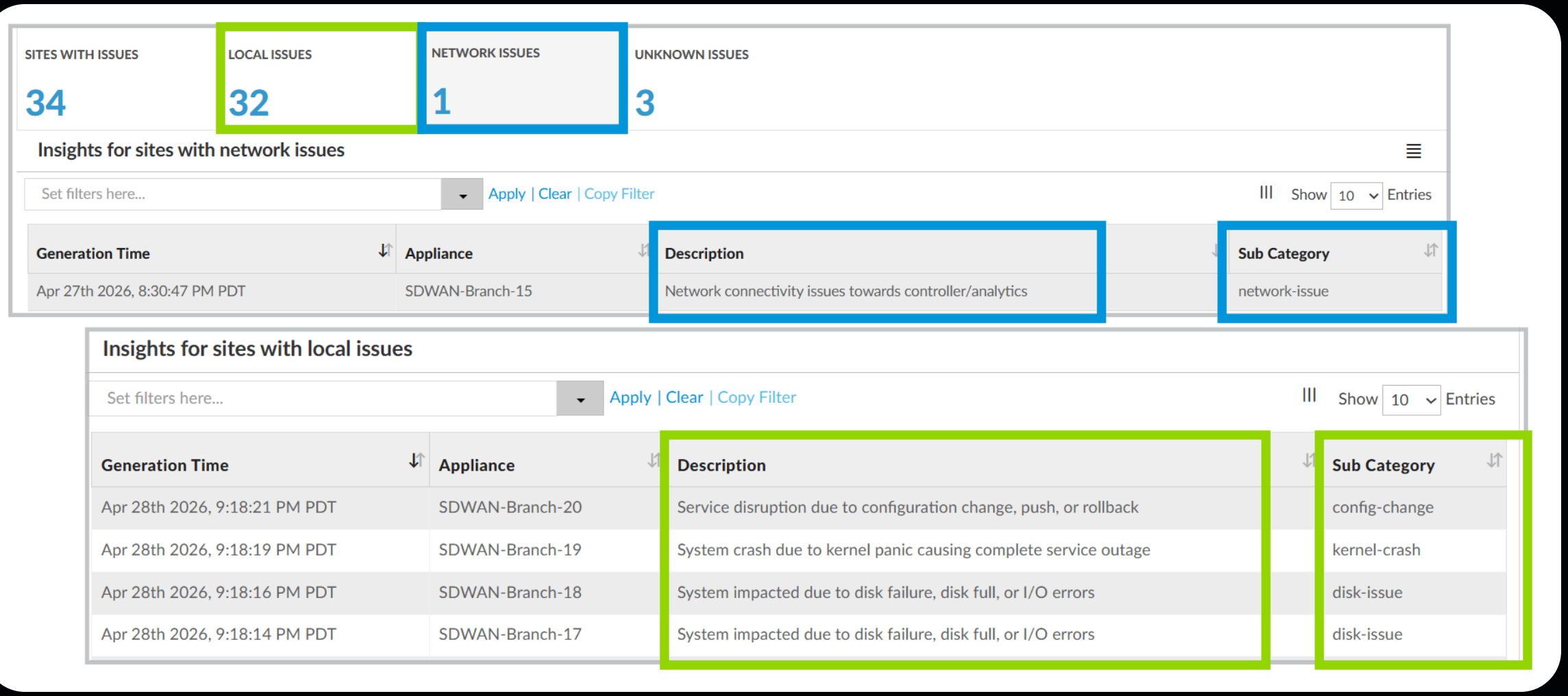
Observability driven insights: *Branch Issues*

- Why was the branch unreachable?
  - Is it due to local or network or other issues?
  - Did my branch restart due to s/w core dump, upgrades or power issues?
  - Did my branch restart due to recent config changes?
  - Did my branch lose connectivity to controllers due to network issues?



Observability driven insights: *Branch Issues*



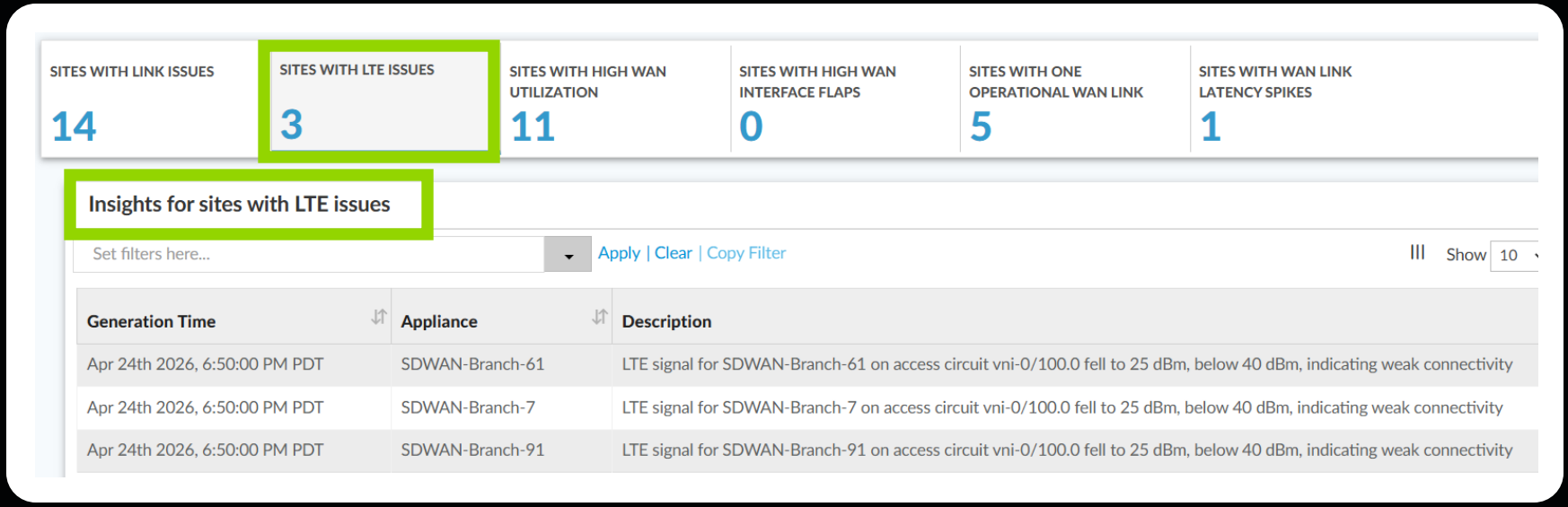
Observability driven insights: *Link Issues*

Prolonged LTE Link Usage

- Costly, constrained, and unreliable for sustained traffic, requiring operator intervention

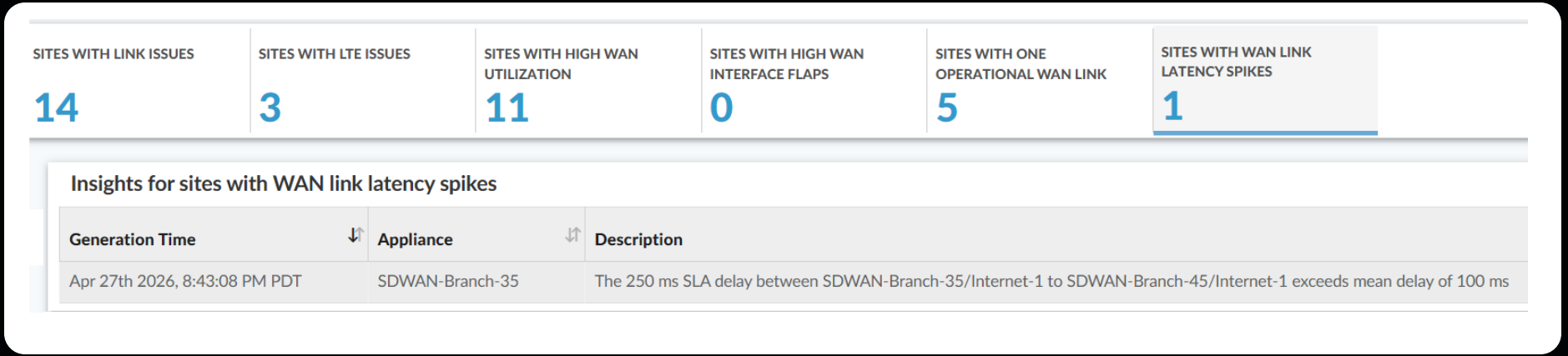
Poor LTE Signal Strength

- Degrades throughput, increases latency, and causes packet loss — directly impacting branch application performance



Observability driven insights: *Link Issues*

- Single WAN Link Branches
  - Indicates a single point of failure requiring immediate operator action to prevent mission critical service disruption
- Latency Spikes on SD-WAN Path
  - Indicates traffic flowing on non-optimal paths, degrading application performance
- Excessive WAN Link Flaps
  - Points to potential misconfiguration or ISP instability requiring investigation
- WAN Utilization Spikes
  - Signals the need to upgrade bandwidth to avoid congestion and maintain application performance



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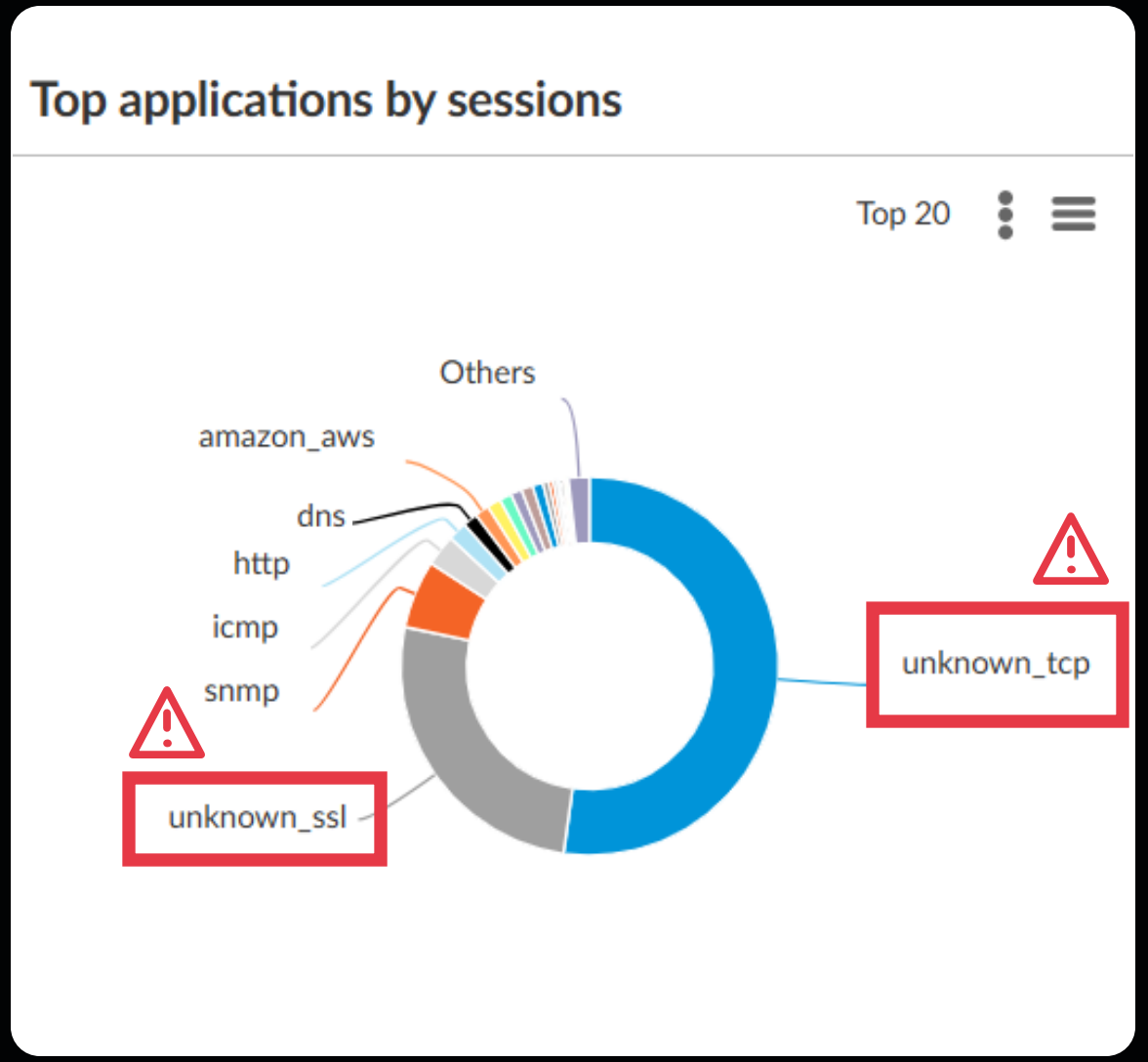
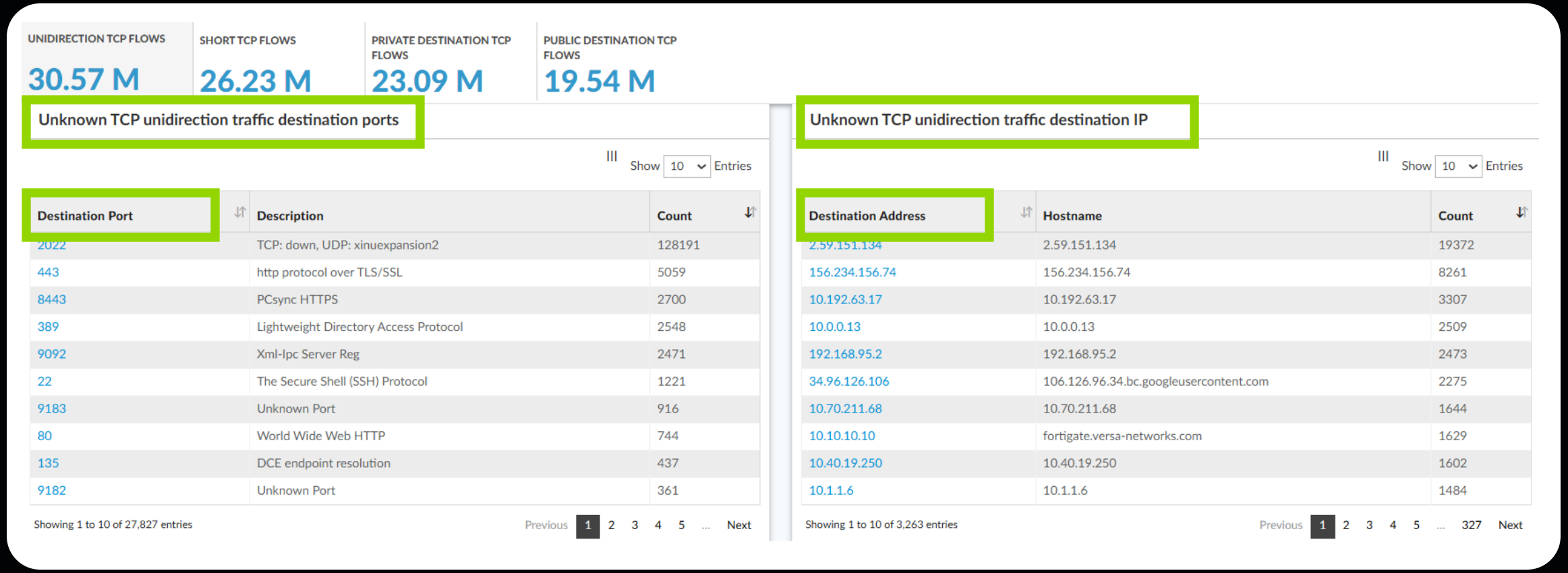
Observability driven insights: *Unknown Traffic Anomalies*

- Why is there a high number of application sessions unidentified?
  - Eg: Unknown TCP, UDP, SSL traffic
  - Is it because of:
    - Unidirectional flows
    - Short flows
    - Missing signatures
- Identifying and categorizing unknown application traffic helps admins apply informed traffic management and security policies



Observability driven insights: *Unknown Traffic Anomalies*

- Provides top destination IP and port of unknown traffic for admins to add signatures for custom apps.



Observability driven insights: *Logging Traffic Anomalies*

Did logging rates increase significantly - and why?

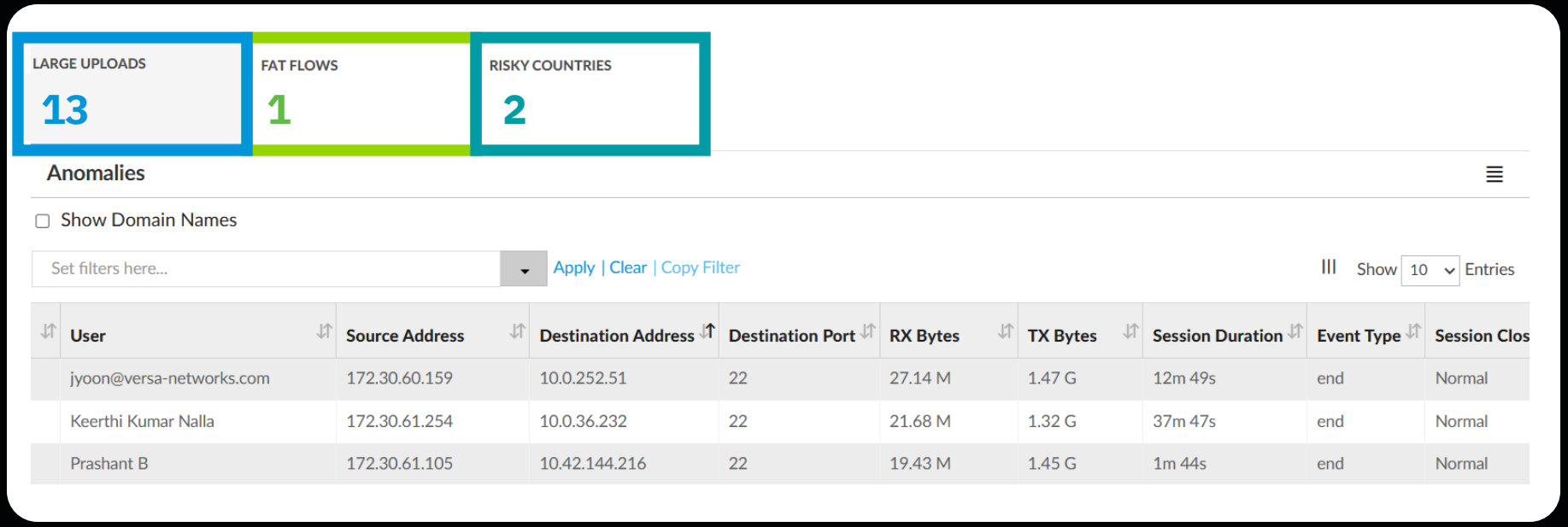
- **Logging rate baseline** — Establish per-device logging volume baselines to accurately size analytics and monitoring infrastructure.
- **Logging rate threshold alerts** — Trigger alarms when device logging exceeds defined thresholds to prevent system overload and ensure operational continuity.
- **Logging rate root cause analysis** — Determine whether logging spikes are driven by a traffic surge, configuration change, or topology change to enable targeted remediation

Heavy logging activity alarms

Generation Time	Appliance	Description
May 4th 2026, 10:15:57 PM PDT	Corp-Inline-Controller-1	Appliance log volume on 2026-05-04 (17,936 logs) is 101.8 % above the baseline for this day of the week (mean: 8,890, typical range: 6,991 - 10,789).
May 3rd 2026, 10:15:50 PM PDT	Corp-Inline-Controller-1	Appliance log volume on 2026-05-03 (17,857 logs) is 109.3 % above the baseline for this day of the week (mean: 8,530, typical range: 6,727 - 10,333).
Apr 27th 2026, 10:15:51 PM PDT	HE-DC-Standby-Device	Appliance log volume on 2026-04-27 (15,022 logs) is 58.0 % above the baseline for this day of the week (mean: 35,748, typical range: 29,247 - 42,249).
Apr 27th 2026, 10:15:51 PM PDT	Chennai-Office-Preferred-Active	Appliance log volume on 2026-04-27 (948,869 logs) is 99.2 % above the baseline for this day of the week (mean: 476,301, typical range: 327,433 - 625,170).
Apr 26th 2026, 10:15:20 PM PDT	HE-DC-Standby-Device	Appliance log volume on 2026-04-26 (14,995 logs) is 57.6 % above the baseline for this day of the week (mean: 35,394, typical range: 29,388 - 41,401).

Observability driven insights: *Other Traffic Anomalies*

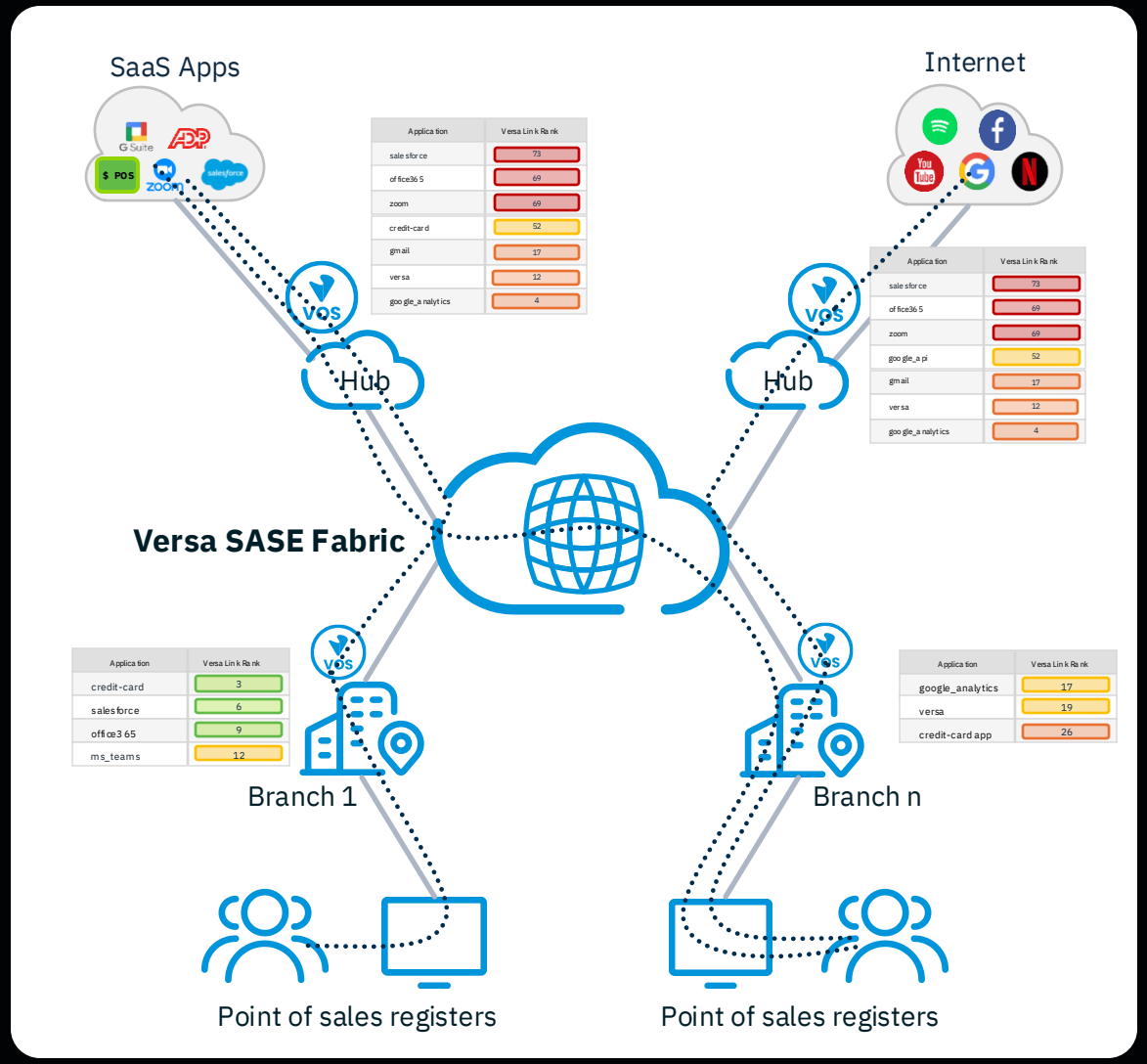
- Fat flow: Traffic sessions utilizing high bandwidth
- Large uploads: Traffic sessions with large #of bytes transferred
- Risky countries: Traffic sessions originating from risky countries



User	Source Address	Destination Address	Destination Port	RX Bytes	TX Bytes	Session Duration	Event Type	Session Clos
jyoon@versa-networks.com	172.30.60.159	10.0.252.51	22	27.14 M	1.47 G	12m 49s	end	Normal
Keerthi Kumar Nalla	172.30.61.254	10.0.36.232	22	21.68 M	1.32 G	37m 47s	end	Normal
Prashant B	172.30.61.105	10.42.144.216	22	19.43 M	1.45 G	1m 44s	end	Normal

Observability driven insights: *User Application Experience Troubleshooting*

- What is root cause of poor application experience?
  - Is issue local to the user or branch or it is network wide issue?
  - Is issue seen across various branches of a specific region or ISP?
  - Is the issue due to a specific application server?
  - Is traffic taking optimal path to the application server?



Case study of a large retail store with application performance issues

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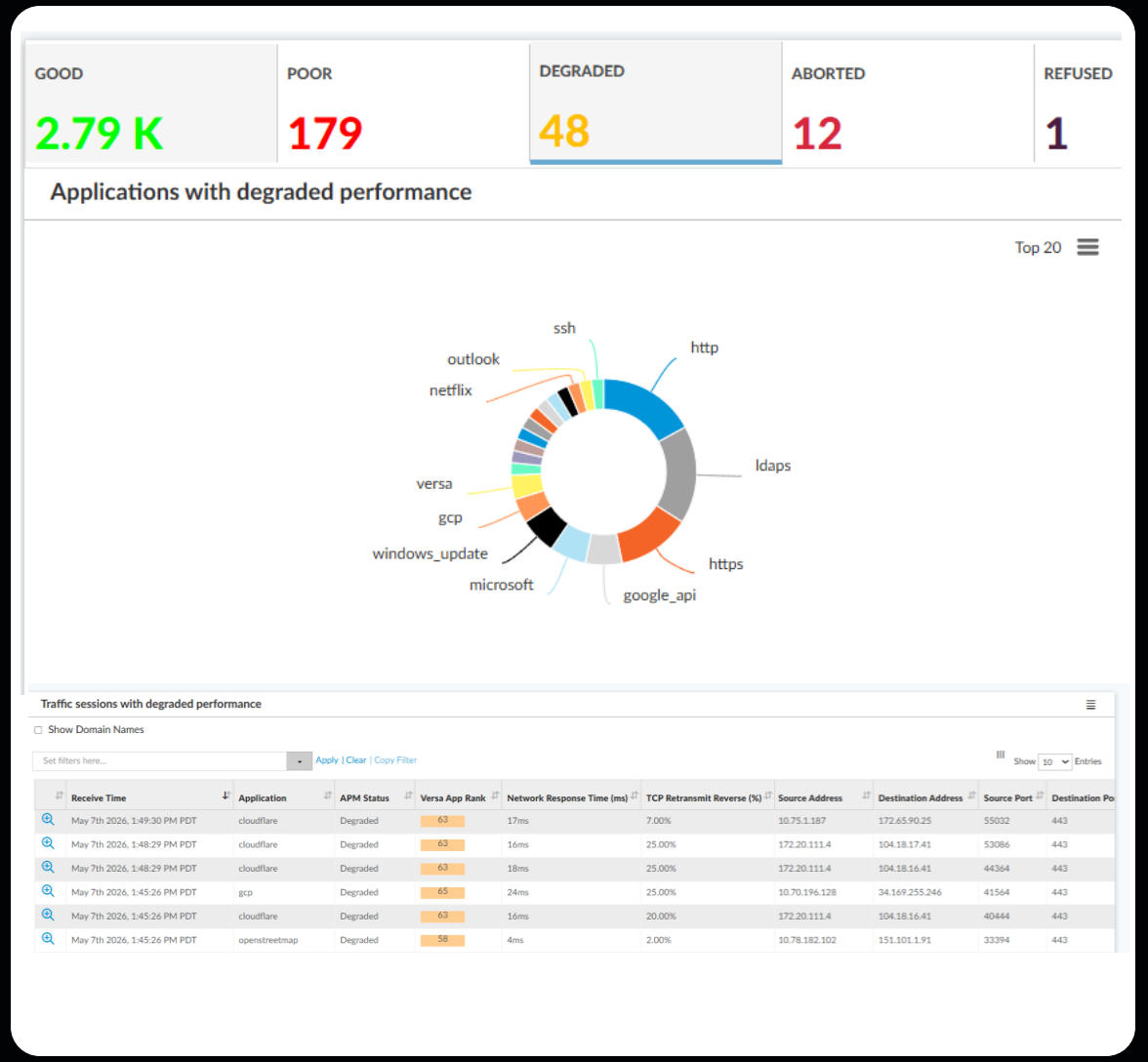
Observability driven insights: *User Application Experience Troubleshooting*

- Active and passive monitoring techniques such as end-to-end DEM and TCP APM aggregated metrics provides probable root cause.
- A new enhancement to include APM metrics inside traffic monitoring flow log helps drilldown to actual flows with issues.
  - Helps derive insights at various levels:
    - Tenant, user, network, server
  - Application flows having bad/degraded performance
  - Application flows having abnormal termination of connections.
  - Voice / Video application flows having poor Mean Opinion Score



Observability Components

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Versa components to support observability at scale

Real-Time Streaming

- Streaming of all events & logs with full context
- Secure & reliable data transfer

Telemetry Cache

- Contextualizes and correlates raw data
- Delivers actionable insights on demand

Advanced Logging Service

- Unified data platform for centralized access
- Real-time & historical insights
- Long term analytics reporting using data lakehouse integration

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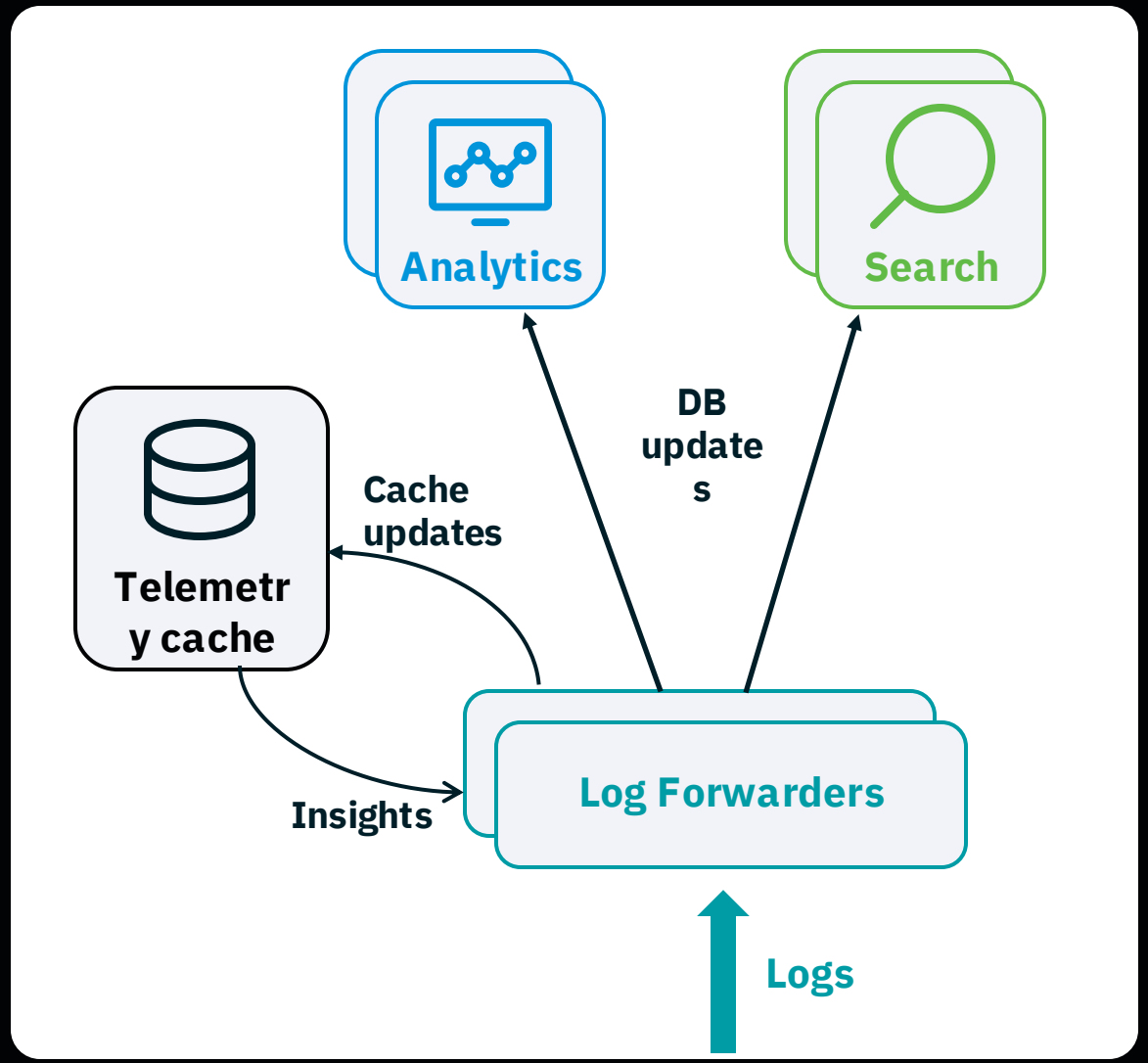
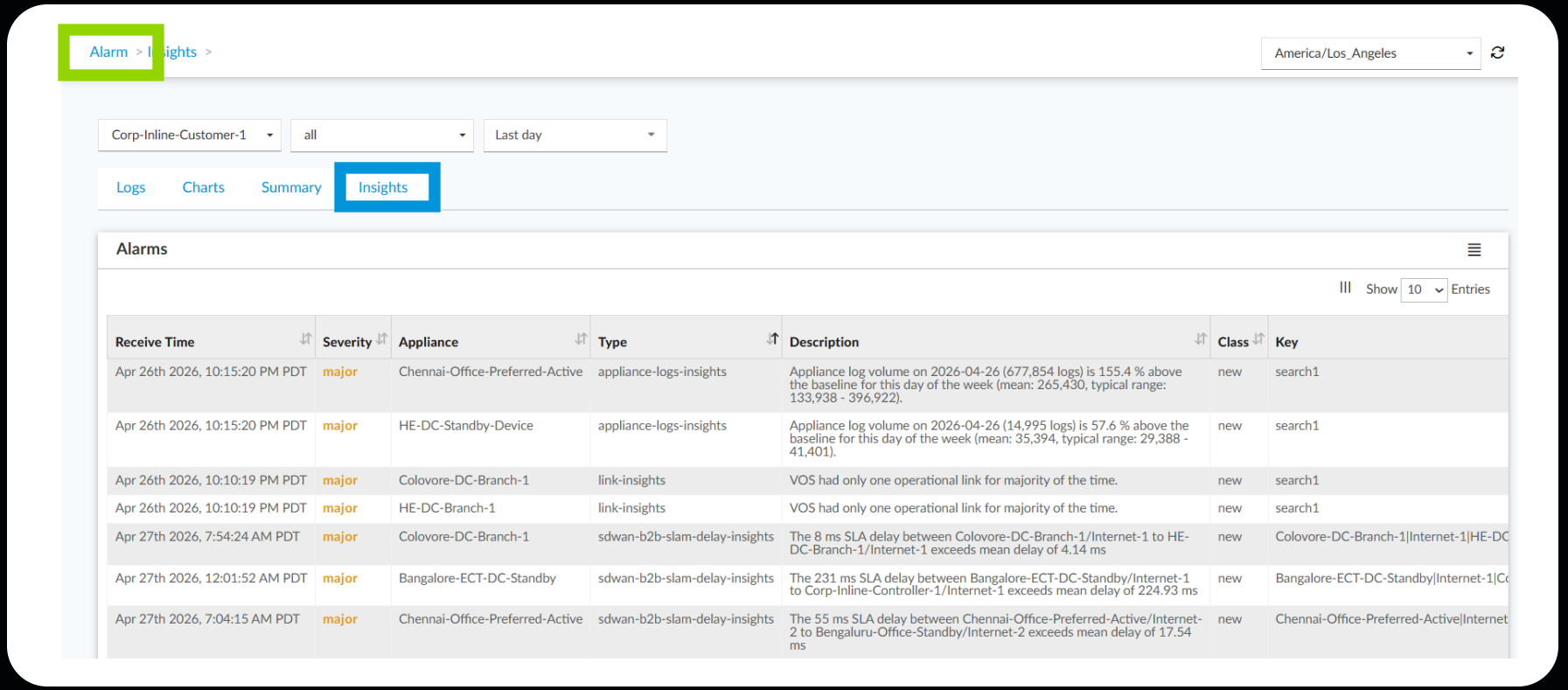
Versa Telemetry Cache (VTC)

- Contextualizing and correlating the raw data to get actionable insights.
- Implemented using distributed Redis Cache on one or more of the analytics nodes.
- Related data to derive insights for branch, link, paths etc. are maintained in the cache and evaluated periodically.
- Welford algorithm used for baseline computation optimally.



Versa Telemetry Cache (VTC)

- Insights and alarms generated can be seen in analytics portal.
- Alarms can also be streamed to other monitoring and ticketing systems.



Receive Time	Severity	Appliance	Type	Description	Class	Key
Apr 26th 2026, 10:15:20 PM PDT	major	Chennai-Office-Preferred-Active	appliance-logs-insights	Appliance log volume on 2026-04-26 (677,854 logs) is 155.4 % above the baseline for this day of the week (mean: 265,430, typical range: 133,938 - 396,922).	new	search1
Apr 26th 2026, 10:15:20 PM PDT	major	HE-DC-Standby-Device	appliance-logs-insights	Appliance log volume on 2026-04-26 (14,995 logs) is 57.6 % above the baseline for this day of the week (mean: 35,394, typical range: 29,388 - 41,401).	new	search1
Apr 26th 2026, 10:10:19 PM PDT	major	Colovore-DC-Branch-1	link-insights	VOS had only one operational link for majority of the time.	new	search1
Apr 26th 2026, 10:10:19 PM PDT	major	HE-DC-Branch-1	link-insights	VOS had only one operational link for majority of the time.	new	search1
Apr 27th 2026, 7:54:24 AM PDT	major	Colovore-DC-Branch-1	sdwan-b2b-slam-delay-insights	The 8 ms SLA delay between Colovore-DC-Branch-1/Internet-1 to HE-DC-Branch-1/Internet-1 exceeds mean delay of 4.14 ms	new	Colovore-DC-Branch-1|Internet-1|HE-DC
Apr 27th 2026, 12:01:52 AM PDT	major	Bangalore-ECT-DC-Standby	sdwan-b2b-slam-delay-insights	The 231 ms SLA delay between Bangalore-ECT-DC-Standby/Internet-1 to Corp-Inline-Controller-1/Internet-1 exceeds mean delay of 224.93 ms	new	Bangalore-ECT-DC-Standby|Internet-1|Co
Apr 27th 2026, 7:04:15 AM PDT	major	Chennai-Office-Preferred-Active	sdwan-b2b-slam-delay-insights	The 55 ms SLA delay between Chennai-Office-Preferred-Active/Internet-2 to Bengaluru-Office-Standby/Internet-2 exceeds mean delay of 17.54 ms	new	Chennai-Office-Preferred-Active|Internet

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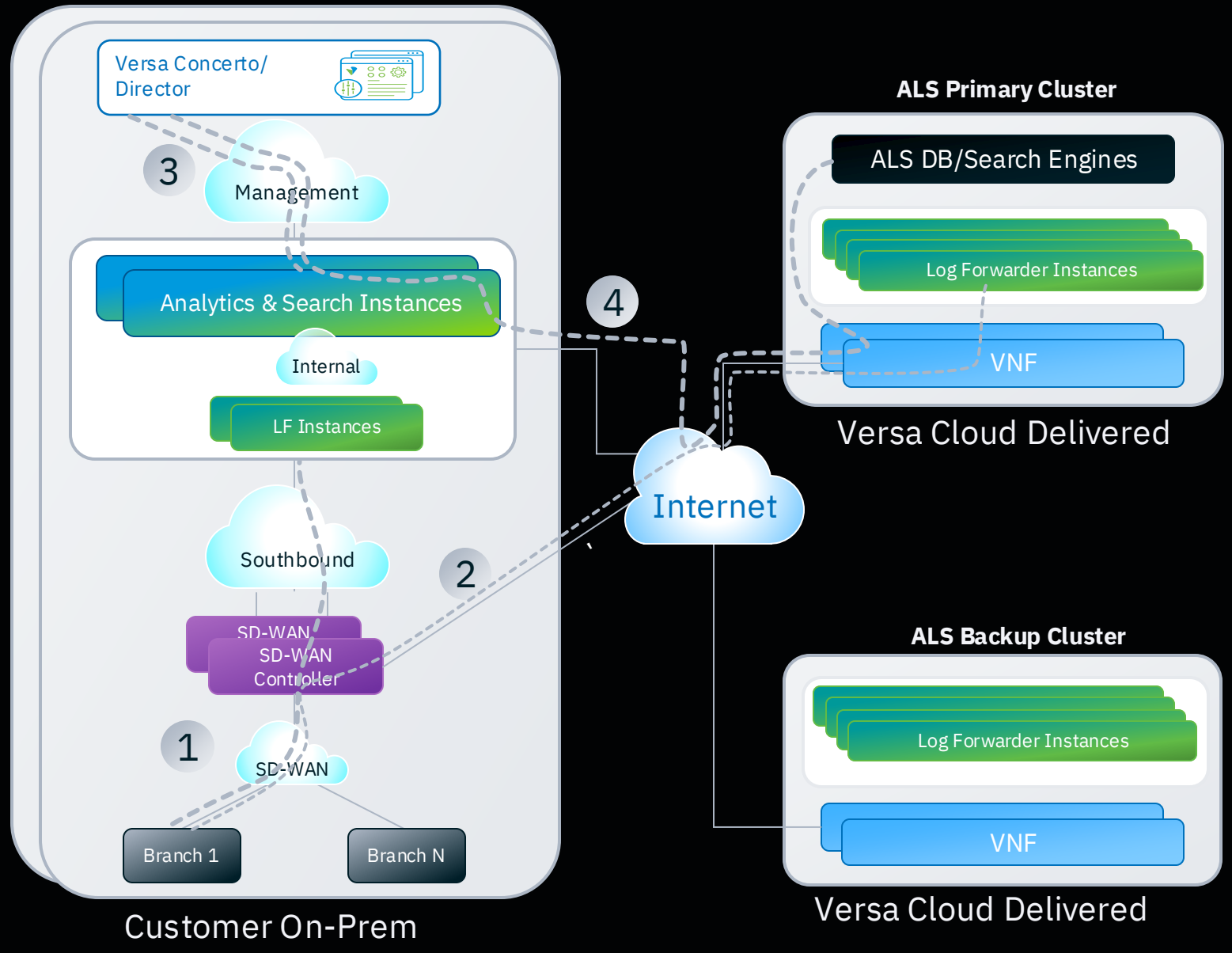
Versa ALS

- Versa managed, cloud hosted **Advanced Logging Service (ALS)** provides scalable solution for Observability
  - Unified data lake provides ability to scale on demand
  - Single pane of view using customer's on-prem or cloud portal
  - Reduces TCO and operational complexity by maintaining data in a unified environment



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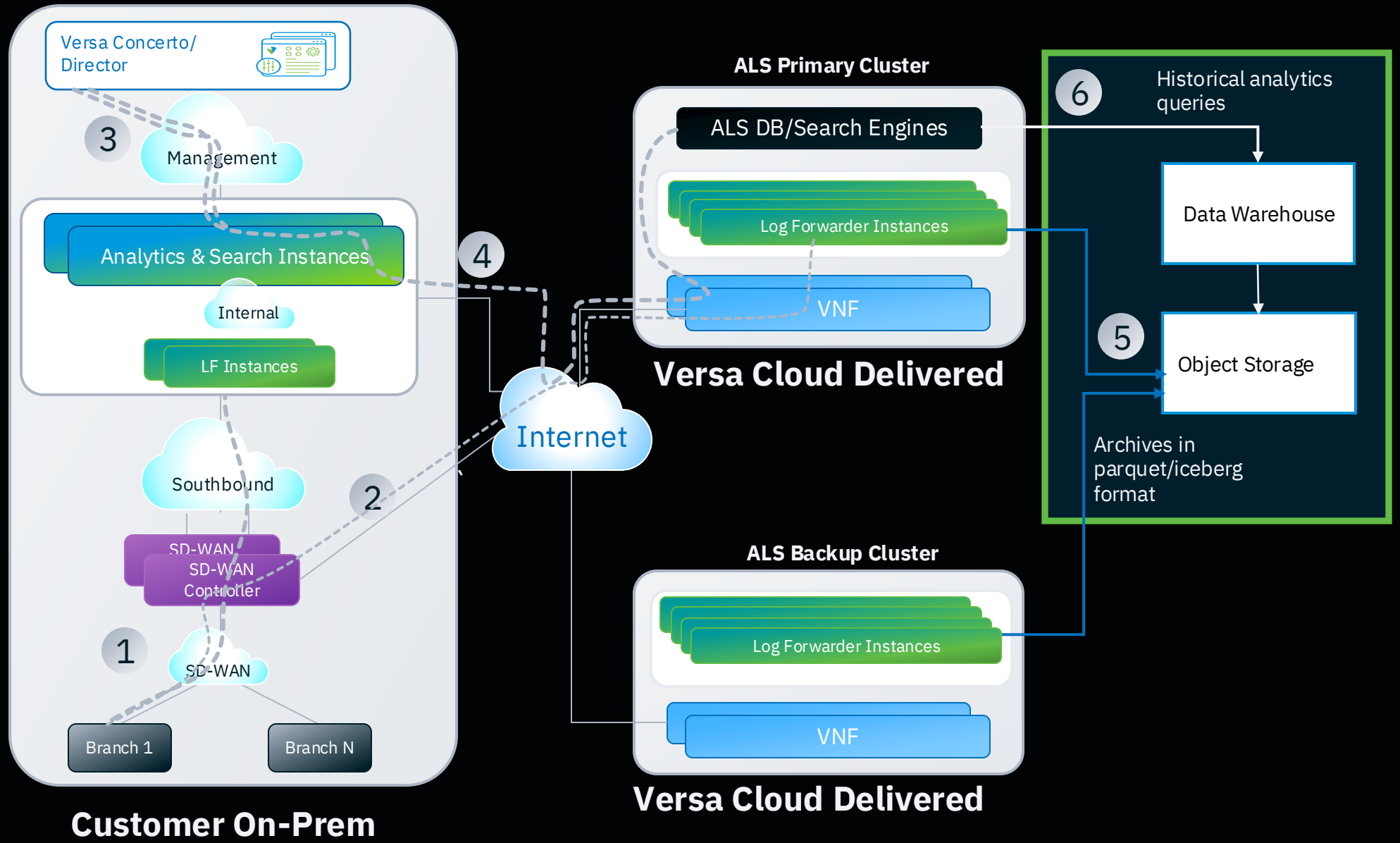
Versa ALS Integration with Data Lakehouse Solutions



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ALS Integration with Data Lakehouse

- Cost-Efficient Archival Storage
  - Long-term retention of observability data in low-cost, scalable storage
- Columnar Data Pipeline
  - Transforms archived data into columnar format for efficient storage and faster SQL-based analytics
- On-Demand Historical Analytics
  - Query historical observability data to surface trends and insights on demand
- Native Data Lake Streaming
  - Stream archived columnar data seamlessly to third-party data lakes and platforms

Conclusion

- Many issues facing observability solutions
  - Data explosion
  - Lack of connected insights
  - No single pane of view
- Versa’s observability platform is designed to handle data at scale
  - Unified view for all services
  - Context aware insights and alerts using the telemetry cache
  - Data lakehouse to generate insights using historical data

Why Does Observability Matter?

Generates actionable insights by enriching data

Reduces the mean time to detect and the mean time to recovery

Delivers business outcomes by improving productivity & reducing cost

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Demo

Thank you!

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