Maximizing AI Potential: Best Practices for Leveraging Cisco and Splunk Data

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CISCOU-2029

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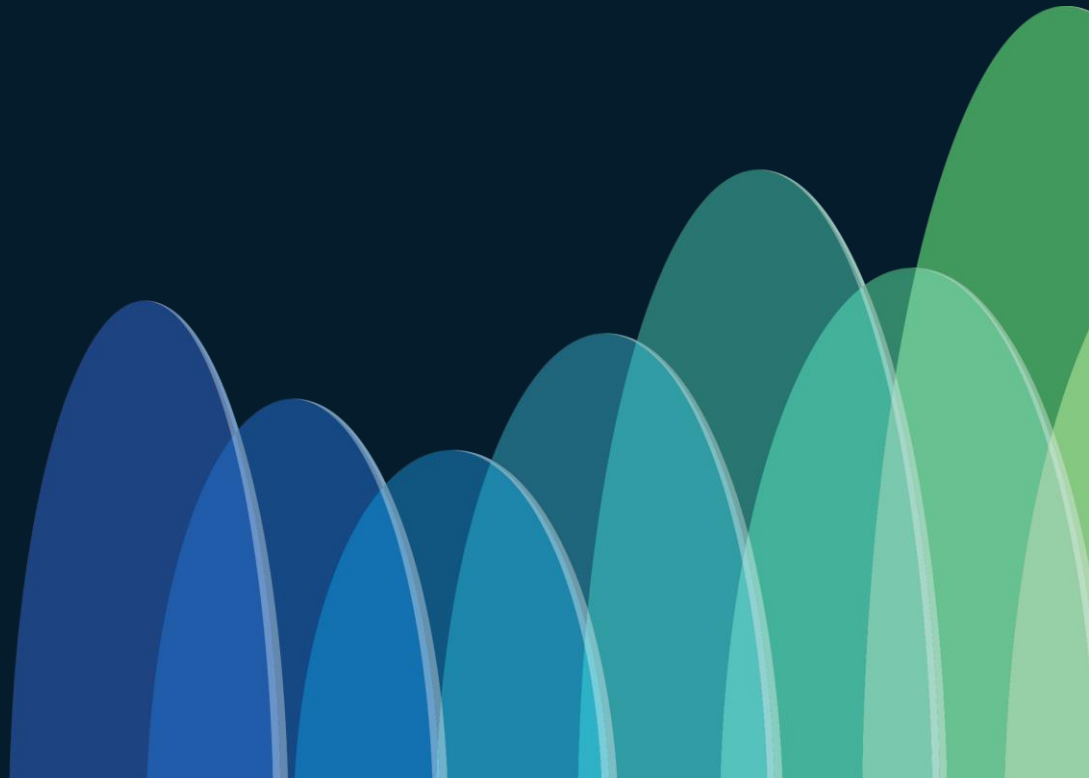
- Why AI in Networking?
- The Role of Data
- Use-Cases & Best Practices
- Challenges and Solutions
- Success Story
- Conclusion

Introduction



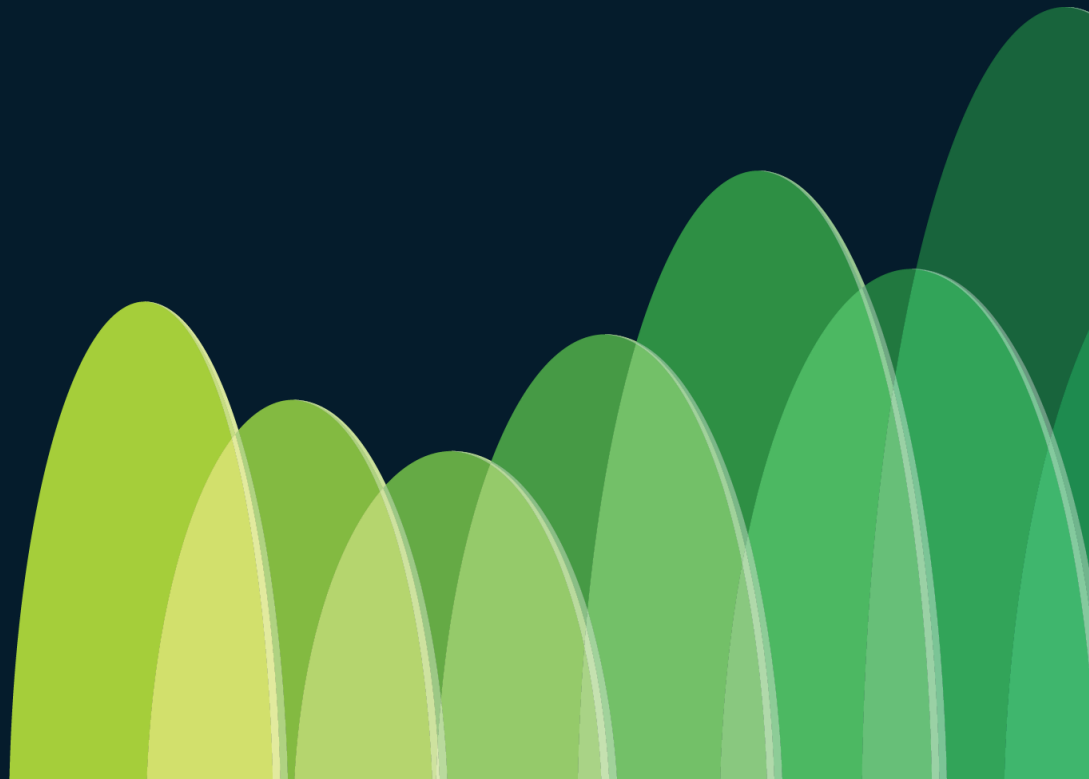
Introduction

- Faisal Azizullah – Principal Architect
- David Stanford – Sr. Director

This session will show you how to maximize AI capabilities by leveraging Cisco telemetry and Splunk's observability data.

Data is key to all use-cases and the focus we have here will be on Networking, how we integrate, and some of the challenges and solutions.

Why AI in Networking?



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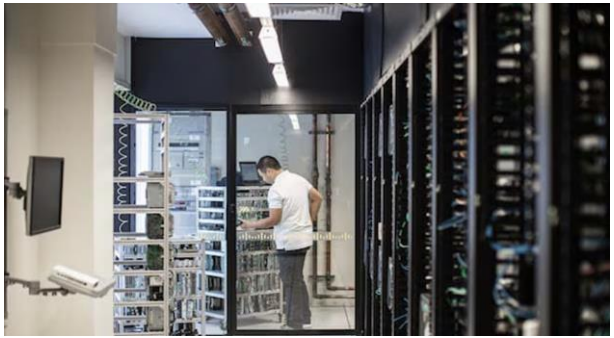
AI and Networking

Modern networks are becoming increasingly complex and the demand for real-time insights and automation has never been higher.

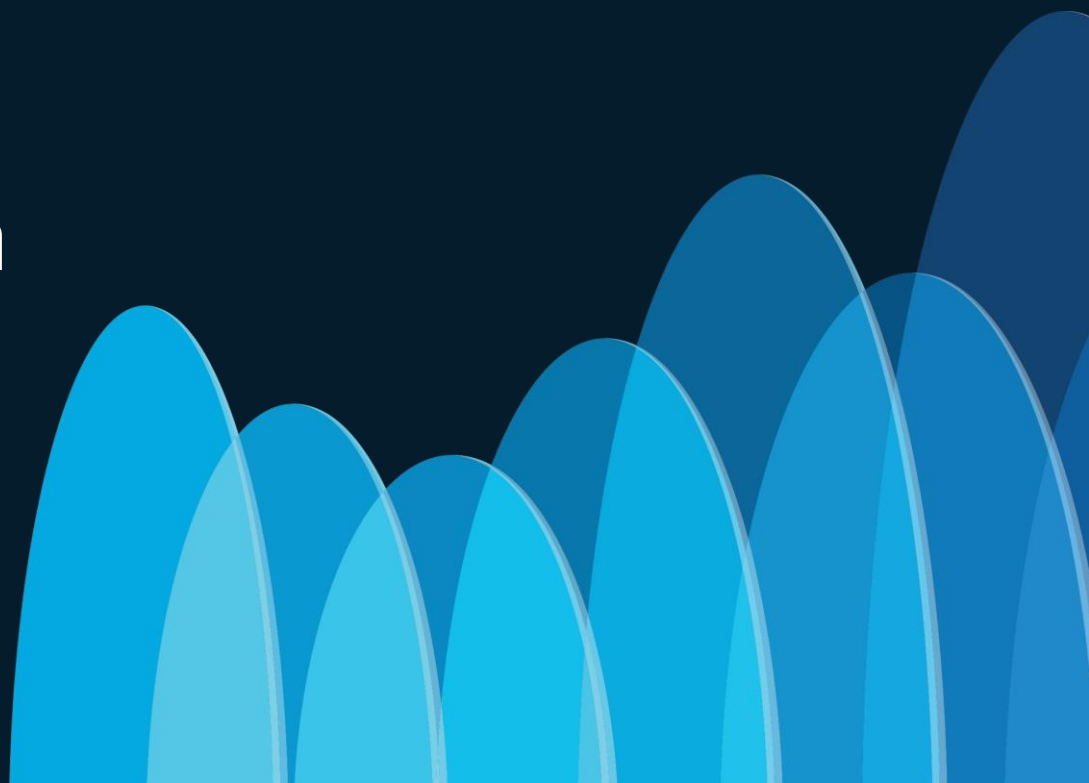
- Billions of devices connected with unique features and at the same time vulnerabilities
- Hybrid Architectures with Dynamic workloads and advanced applications
- Increase Security Challenges

AI provides us with opportunities including:

- Predictive Maintenance.
- Network Optimization.
- Enhanced Security



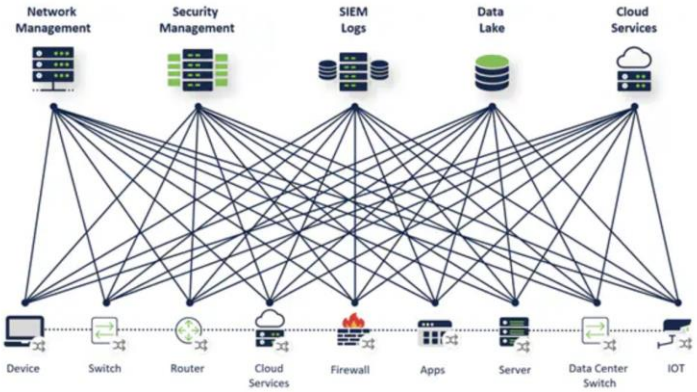
The Role of Data



Cisco Data

Cisco has numerous key data sources including:

- Cisco Catalyst Center telemetry
- ThousandEyes monitoring
- Meraki Cloud Insights
- Security analytics from Cisco XDR



These sources provide benefits including:

- Granular network visibility
- Proactive incident management
- Proactive Security
- Automation and AI

Splunk Data

Splunk’s Observability Suite provides data including:

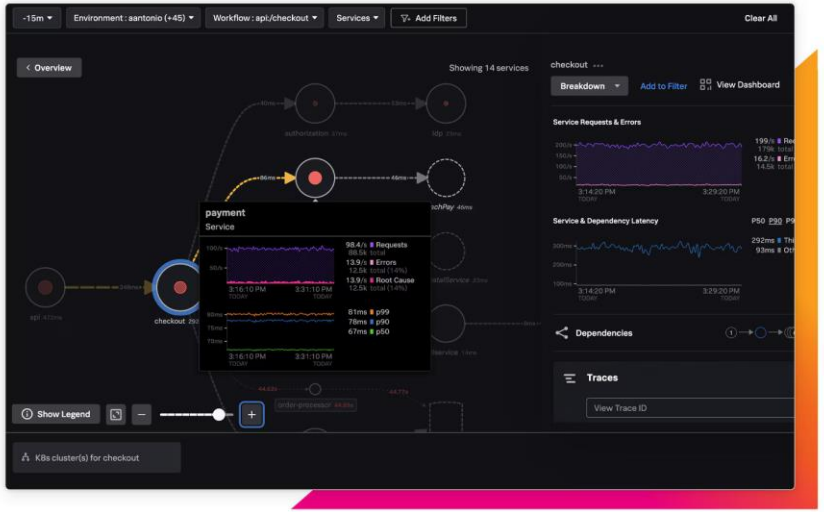
Application
- Metrics, Logs, and Traces

Infrastructure
- Host, Container, and Cloud Metrics

Network
- Traffic, Flow, and Connectivity

Security and Compliance
- Audit Logs and Threat Detection

Machine Learning and Analytics
- Anomaly Detection and Predictive Analytics

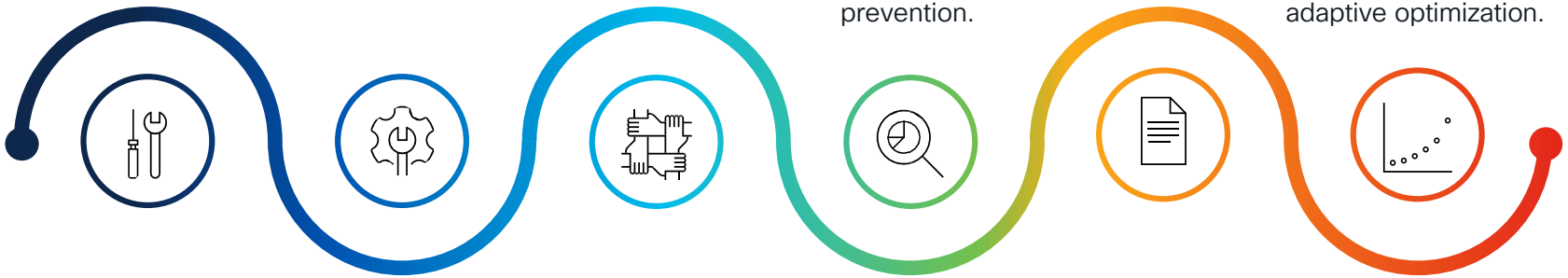


AI-Driven Telemetry Workflow for Predictive Networking

Data Ingestion & Processing
Aggregates, normalizes, and enriches telemetry data for AI-driven analysis.

Predictive Insights & Automation
Generates actionable recommendations for performance optimization, security, and fault prevention.

Automated Response (Agentic Framework)
AI-driven agents dynamically implement network changes, ensuring self-healing and adaptive optimization.



Telemetry Data Collection
Captures real-time network data from Cisco devices, including logs, metrics, and traffic patterns.

AI-Powered Analysis & Anomaly Detection
Uses machine learning models to identify patterns, detect anomalies, and predict potential failures.

Actionable Response & Optimization
Automates policy adjustments, traffic shaping, and incident responses based on AI insights.

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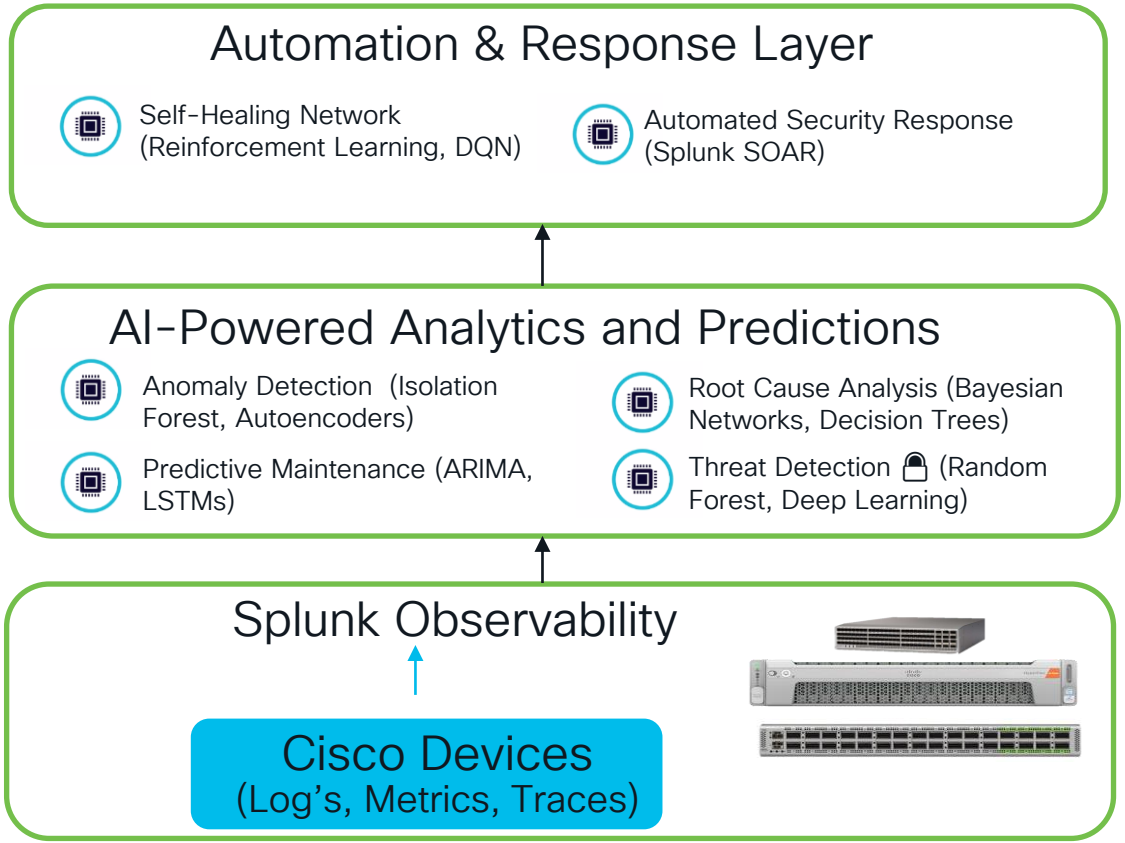
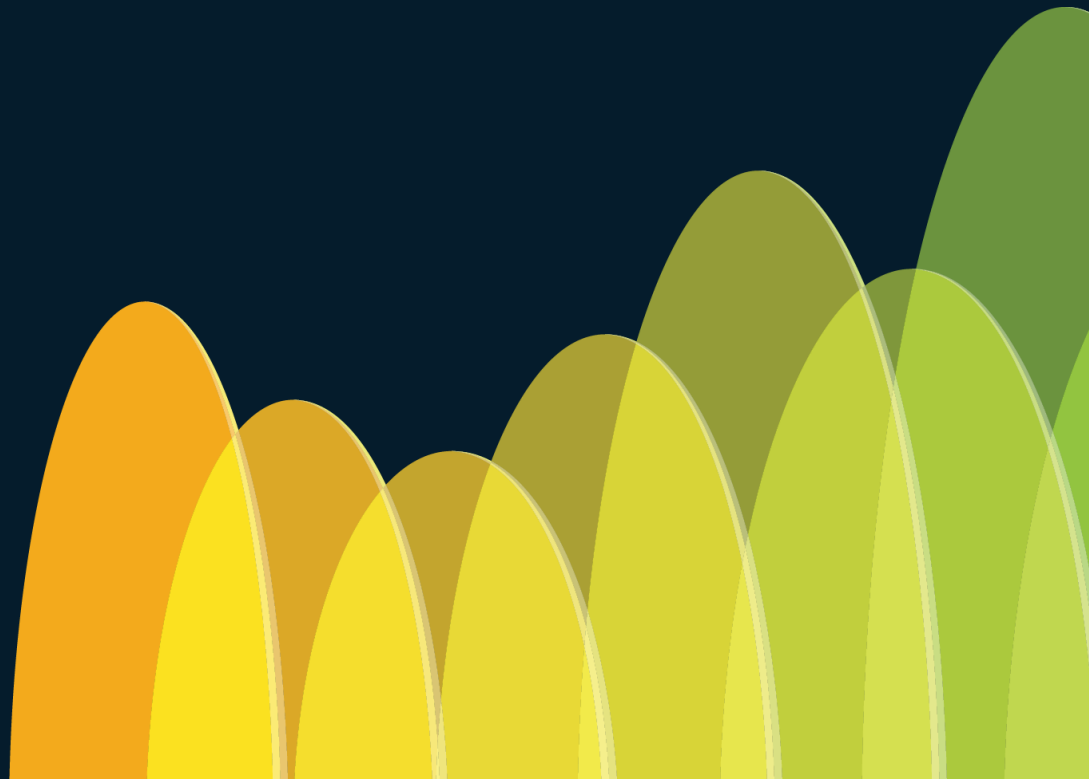
AI-Powered Networking with Telemetry



Use-Cases & Best Practices



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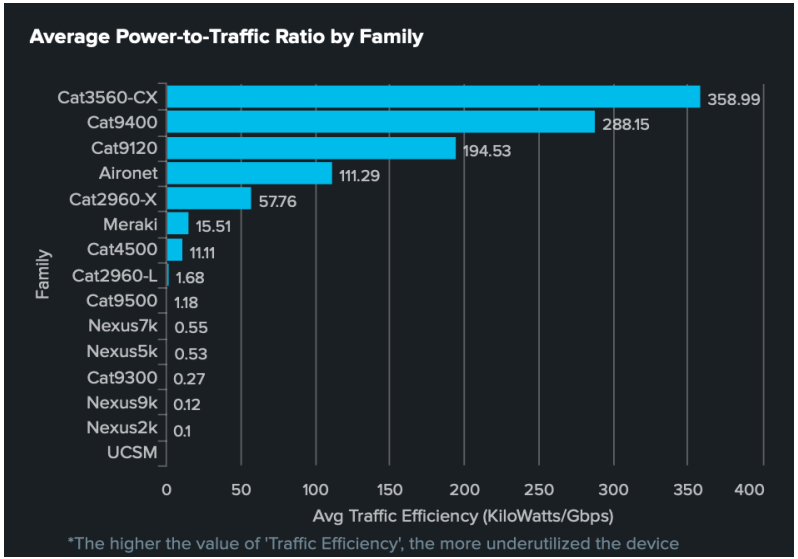
Use Case 1 – Predictive Maintenance

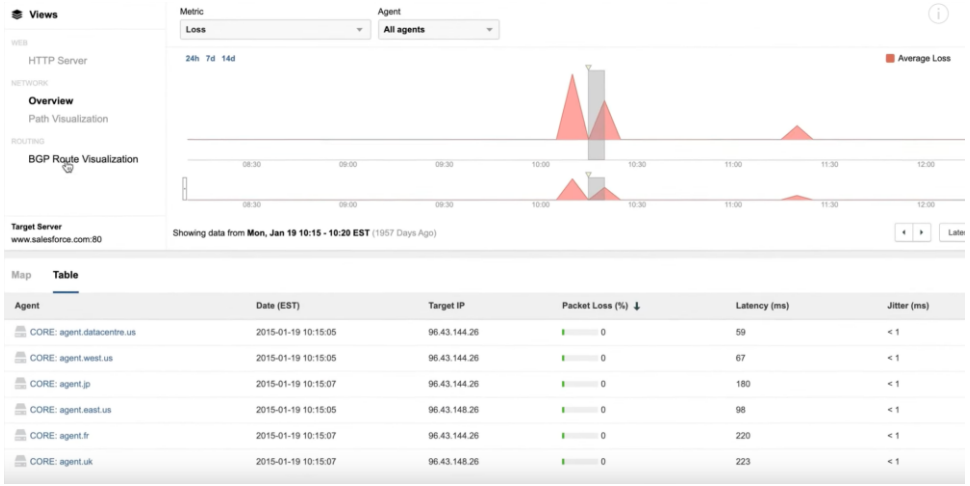
Predictive Maintenance Leveraging Cisco's device health data and Splunk's logs to predict failures.



- Identify the specific devices or systems that require predictive maintenance (e.g., routers, switches, or access points).
- Set measurable goals such as reducing downtime, preventing failures, or improving network reliability.

Use Case 2 – Network Optimization

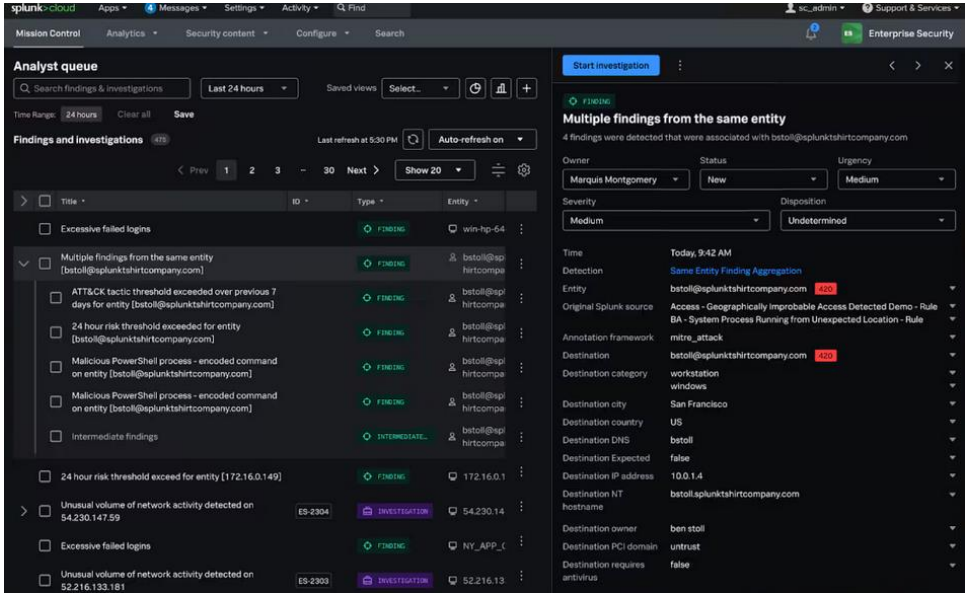
Network Optimization using AI models to optimize network traffic flows and reduce congestion.



- Reduce network congestion and improve traffic flows
- Minimize latency, balance loads across links, or maximize throughput
- Identify areas for optimization (e.g., data centers, branch offices, or WAN links).

Use Case 3 – Security Incident Detection

Security Incident Detection combining threat intelligence from Cisco with Splunk's anomaly detection



- Enhance security by proactively detecting and responding to threats
- Focus on specific use cases like phishing detection, malware identification, or insider threats
- Identify key security tools and data sources (e.g., Cisco SecureX and Splunk)

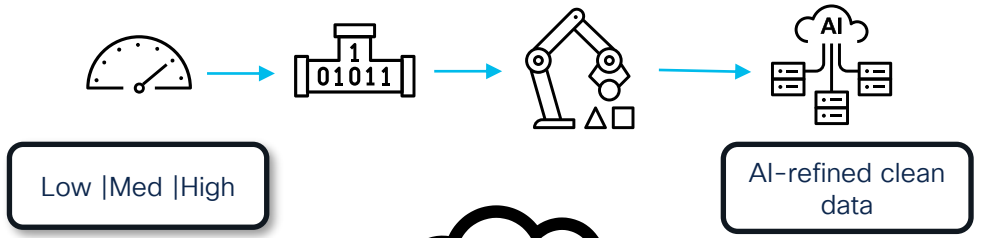
Technical Architecture Recap

Data Flow:

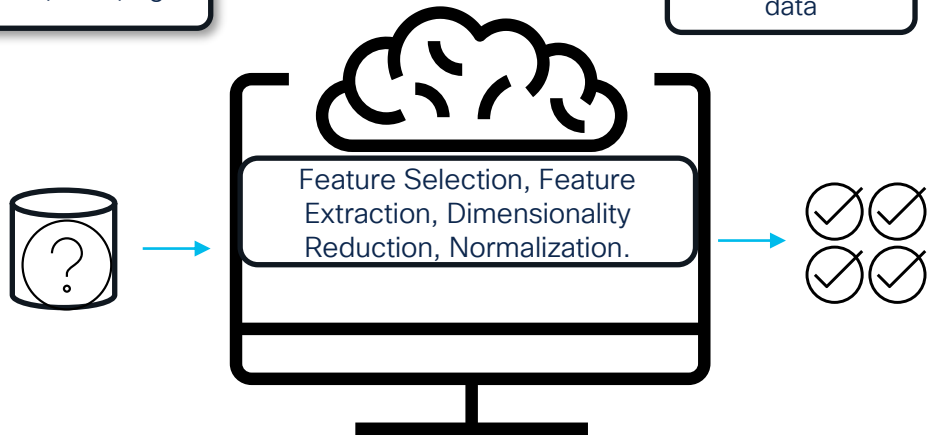
1) Data ingestion from Cisco devices
2) Data aggregation and correlation in Splunk.
3) AI model training using combined datasets.
4) Real-time predictions and automated actions.

AI Model Design Considerations

Data Quality



Feature Engineering



Model Evaluation

Best Practices for Implementation

Start Small

- Focus on a specific use case.

Automate Data Pipelines

- Use APIs and connectors.

Monitor and Improve Models

- Regularly update models based on new data

Challenges and Solutions

Challenges and Solutions

Challenge: Data Silos

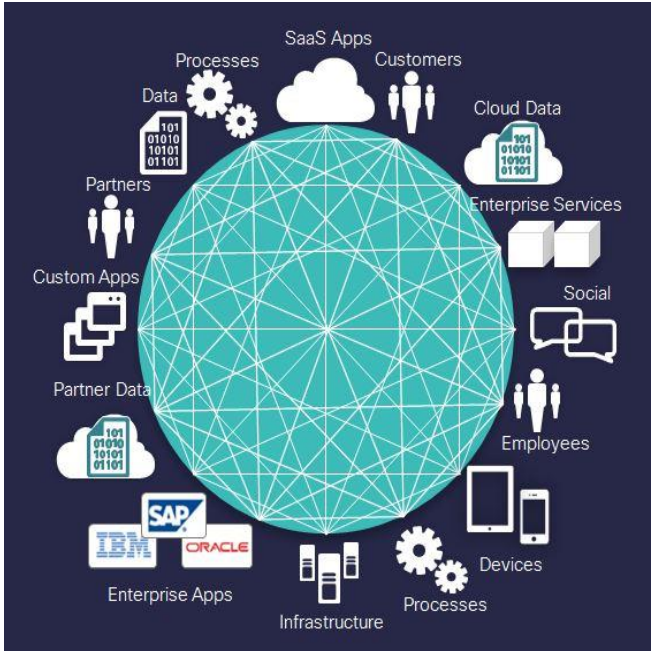
Solution: Use Splunk for data aggregation.

Challenge: Model Drift

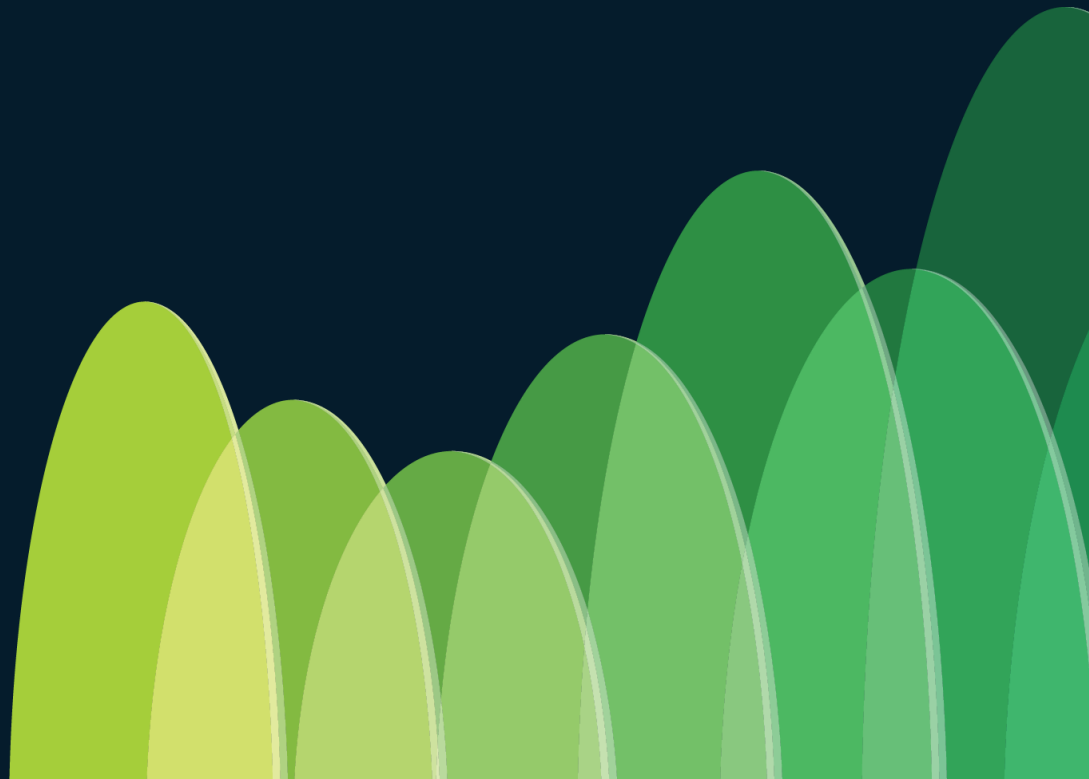
Solution: Continuous model monitoring.

Challenge: Security & Privacy

Solution: Implement role-based access controls.



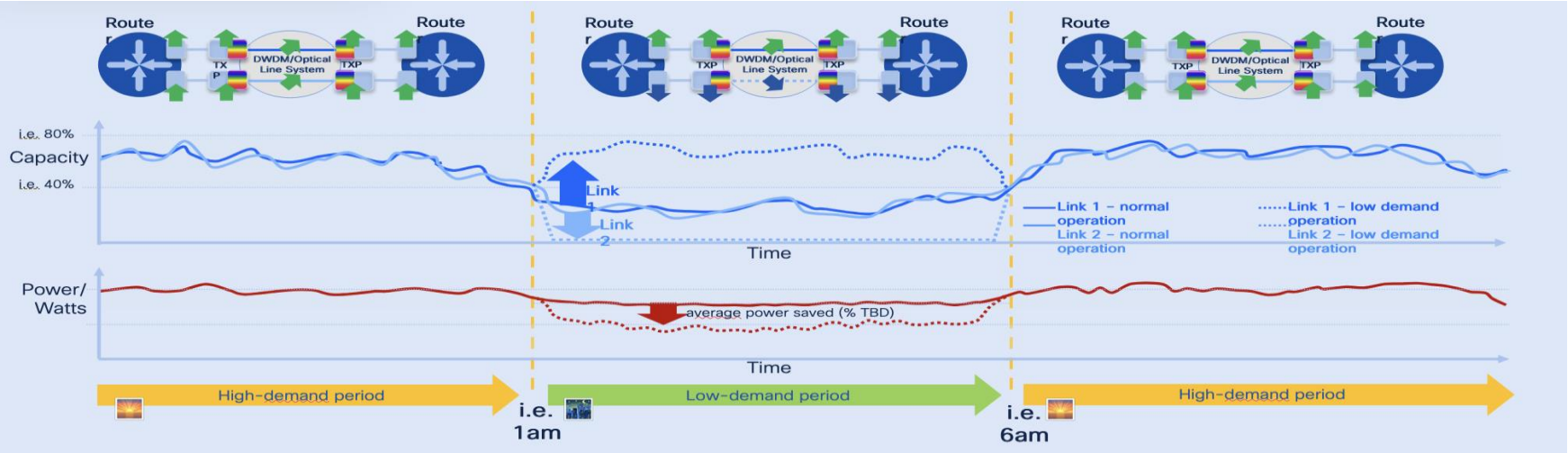
Success Story



Success Story

Case Study: SP Customer Challenge: Power and Cost

- Solution: Integrated Cisco and Splunk data to predict network utilization and enable power savings
- Outcome: Reduced power utilization and energy costs



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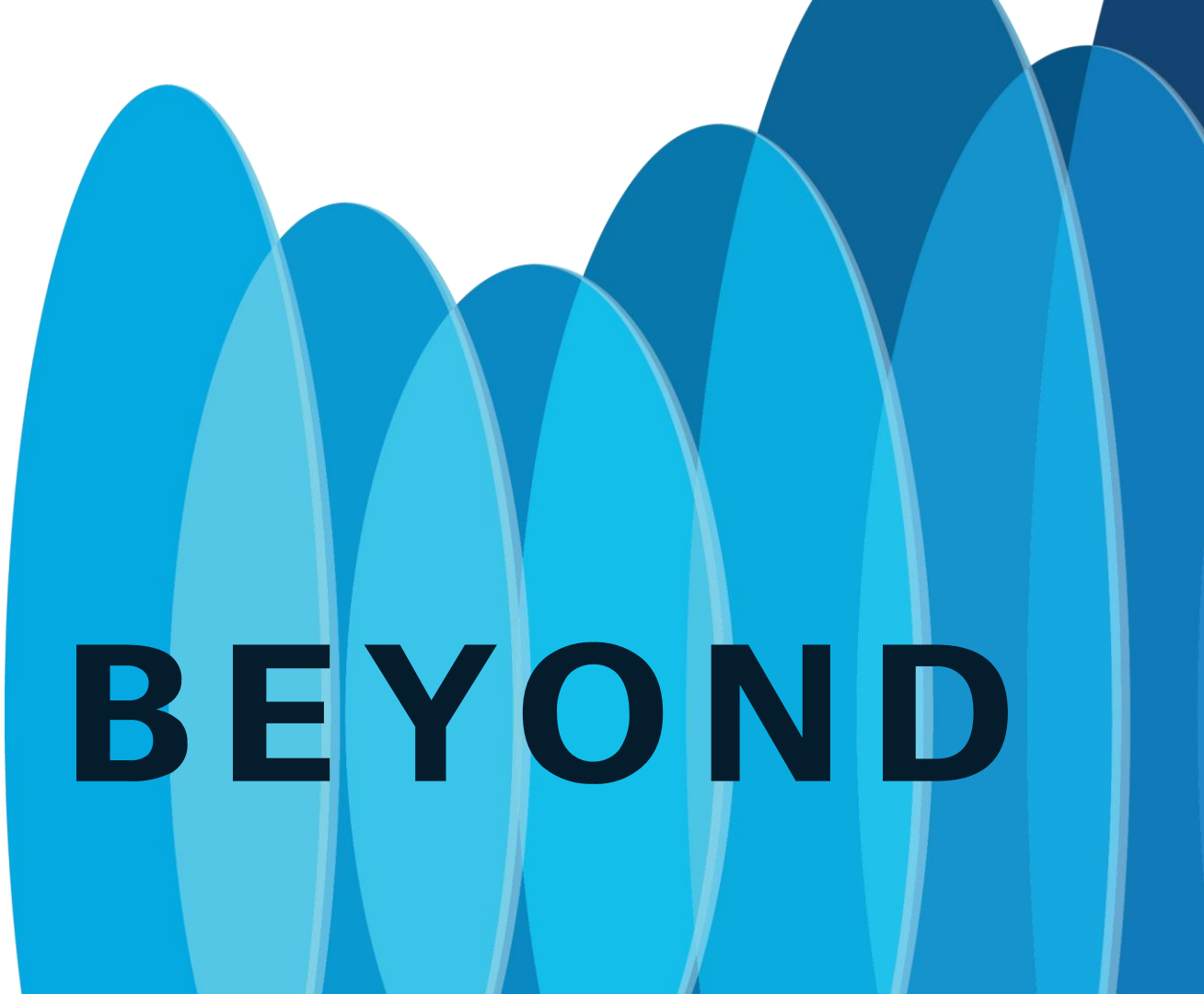

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