



# Enterprise Networking

Lösungsintegration mit echtem Mehrwert

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IT for  
innovators.



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innovators.

# Agenda

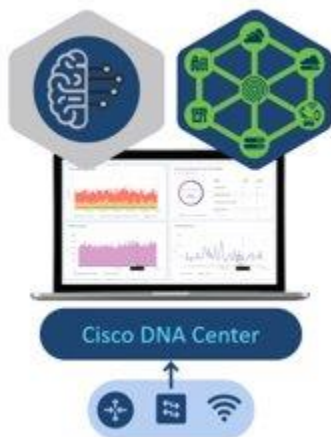
- **Experience + Use Cases**
- **Future of Cisco Prime**
- **Artificial Intelligence (AI)**
- **Sustainability**
- **Full Stack Observability**
- **Wireless Value Generation**

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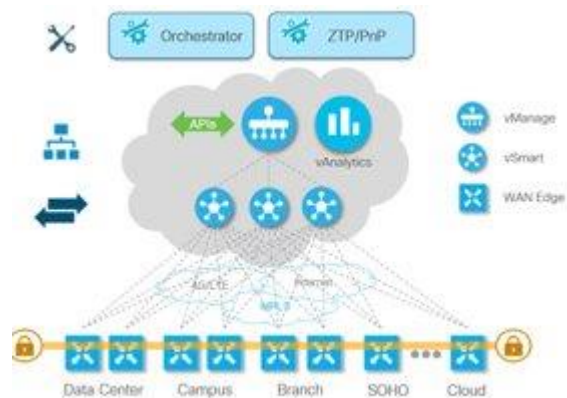
# Project Experience + Use Cases

# Software Defined Solutions

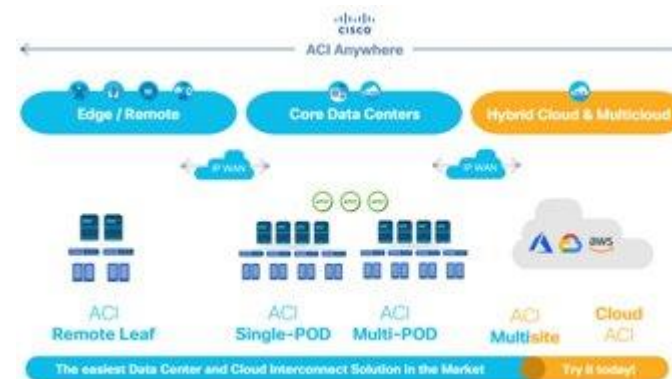
## Cisco SD-Access



## Cisco SD-WAN



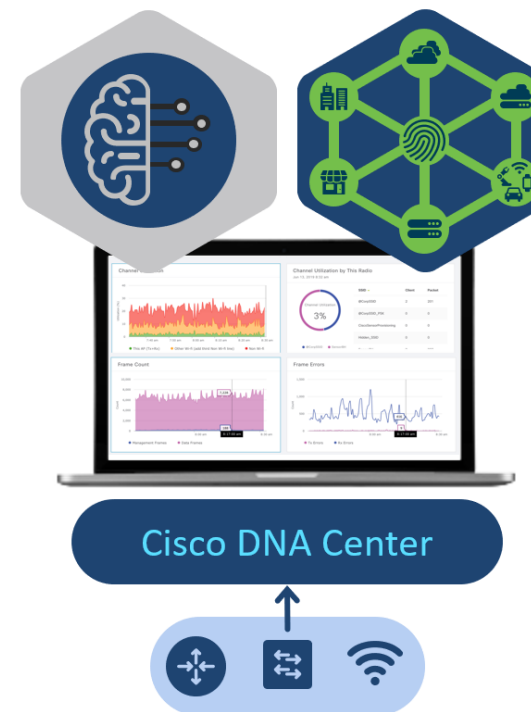
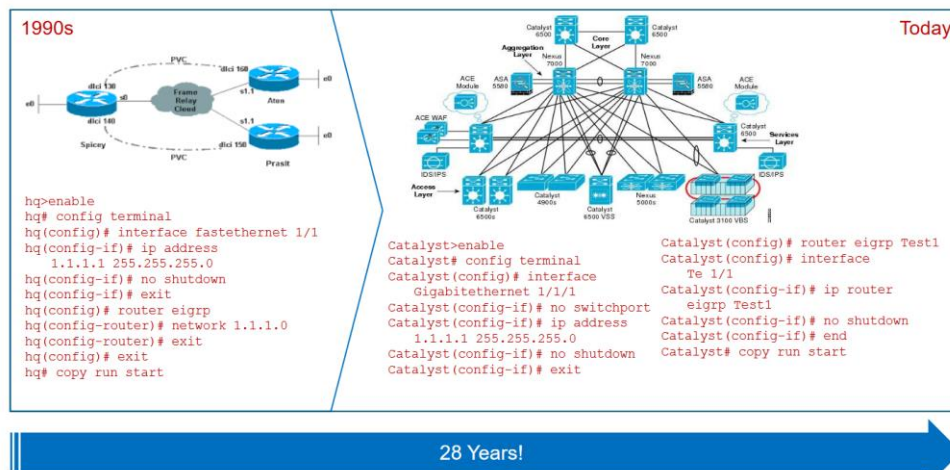
## Cisco ACI



# Umgesetzt SD-Projekte

- **11 Cisco SD-Access Projekte von 100 bis 15.000 User**
- **8 Cisco ACI Projekte von 500 bis 40.000 User**
- **5 Cisco SD-WAN Projekte von 200 bis 2.500 Usern**
- **Branchen:**
  - Industrie
  - Gesundheit
  - Versorger
  - Finanzen
  - Öffentlicher Dienst

# Classic vs. Software Defined



Macr
Policies (25)
[Enter full screen](#)

Filter
Deploy
Refresh

■ Permit
■ Deny
■ Custom
□ Default

Building

First color dot net

Source	Destination	ACP_CLIENTS	collaboration	HZB_Cloud_Vi...	IOT_DEVICES	Printer
ACP_CLIENTS		■	■	■	■	■
collaboration		■	■	■	■	■
HZB_Cloud_Vid...		■	■	■	■	■
IOT_DEVICES		■	■	■	■	■
Printer		■	■	■	■	■

Users

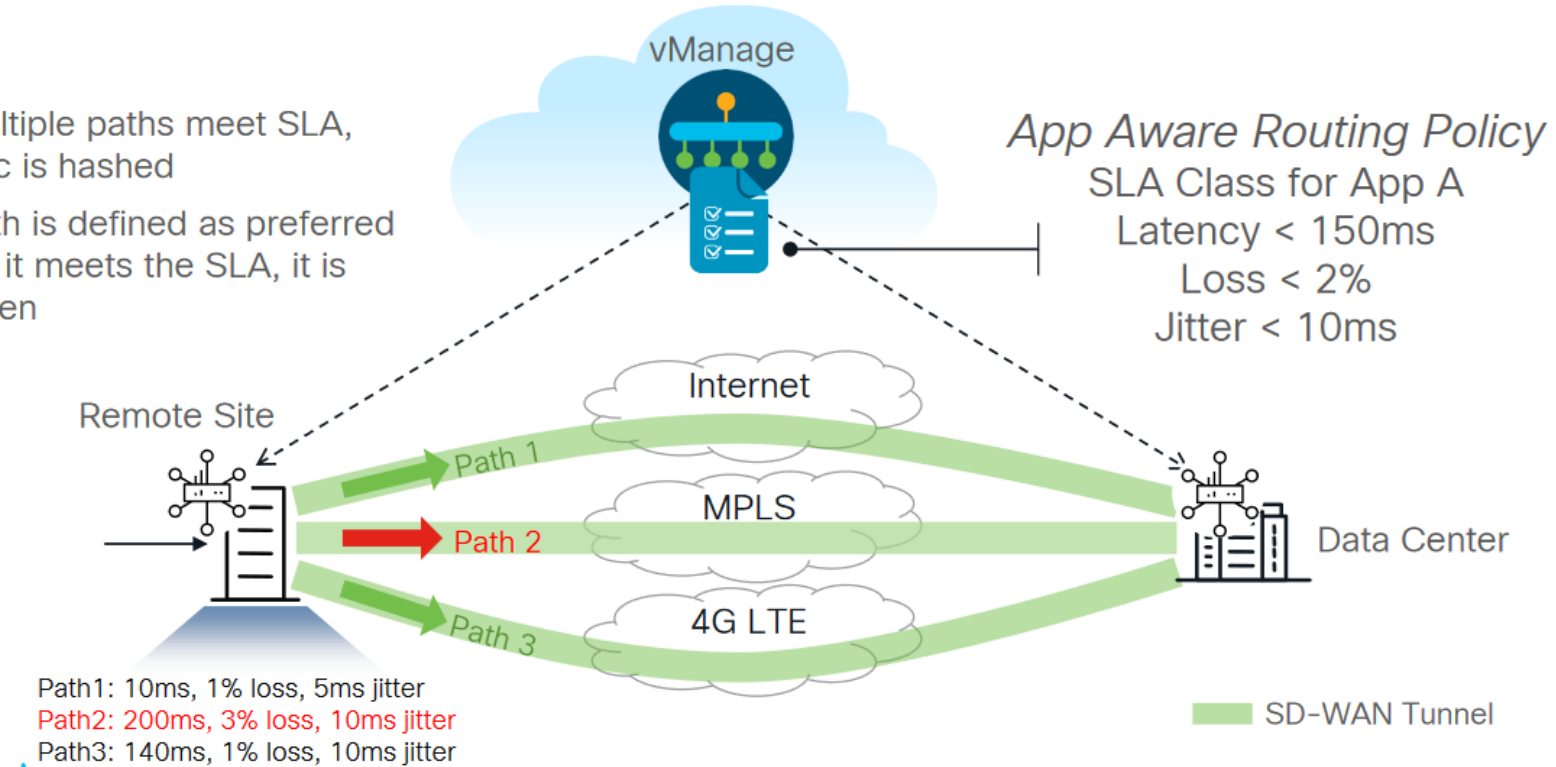
Used ity s or



# SD-WAN Use Cases

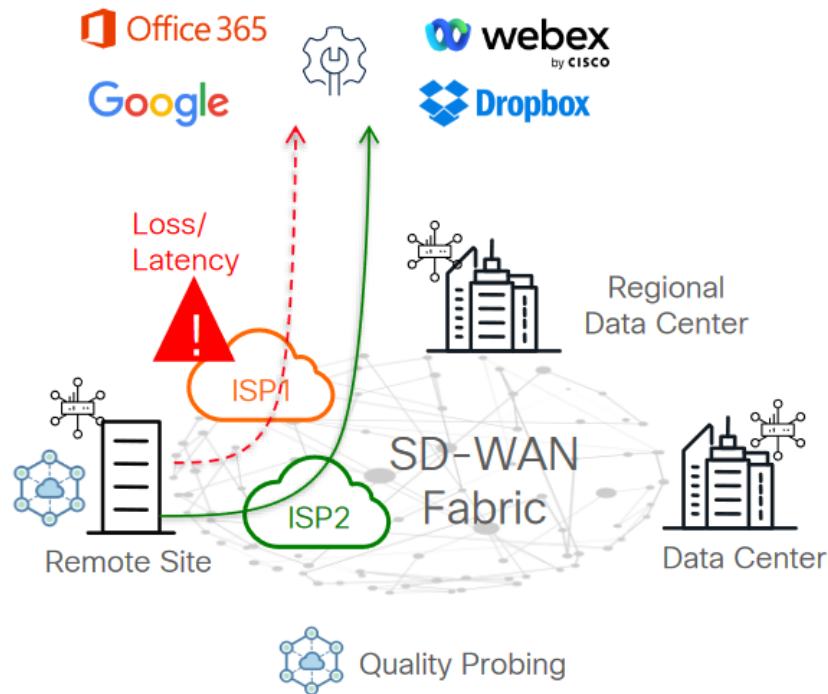
## Application Aware Routing

- If multiple paths meet SLA, traffic is hashed
- If path is defined as preferred AND it meets the SLA, it is chosen



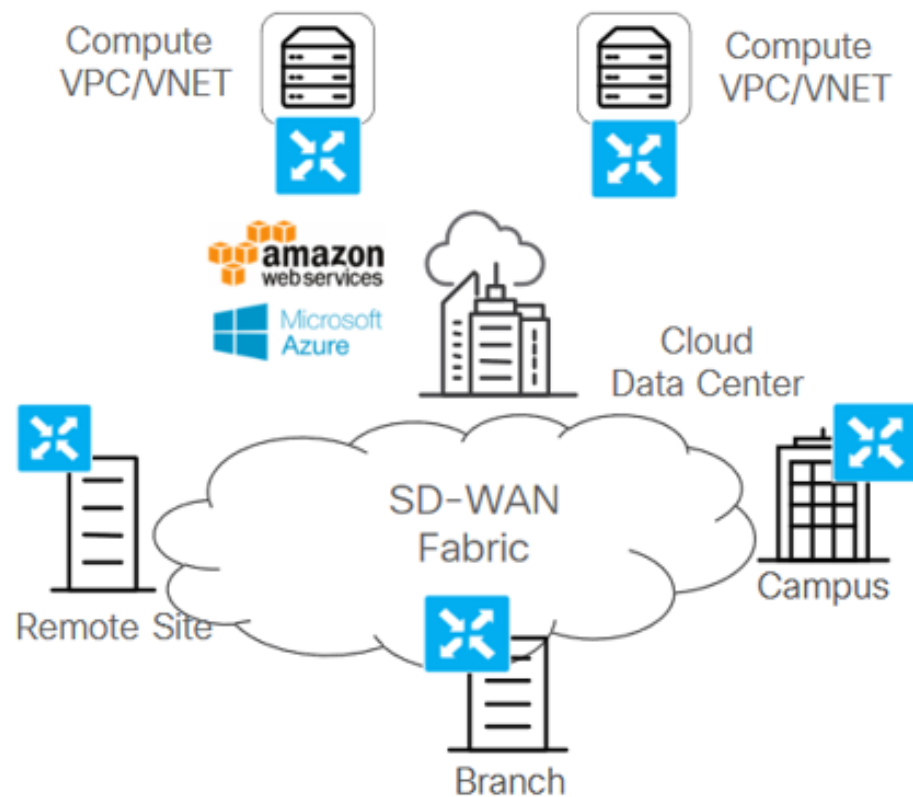
# SD-WAN Use Cases

## Cloud onRamp for SaaS – Internet DIA



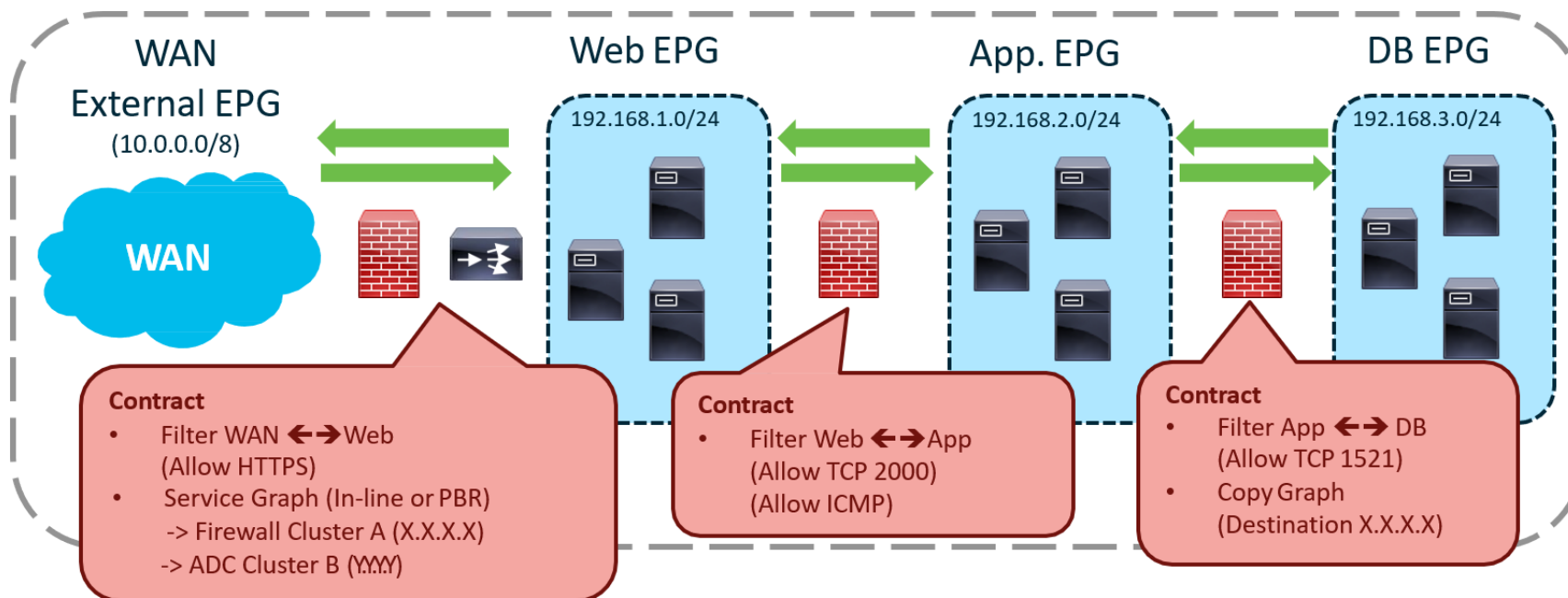
- WAN Edge router at the remote site performs quality probing for selected SaaS applications across each local DIA exit
  - Simulates client connection using HTTP ping
- Results of quality probing are quantified as vQoE score (combination of loss and latency)
- Local DIA exit with better vQoE score is chosen to carry the traffic for the selected SaaS application
  - Initial application flow may choose sub-optimal path until DPI identification is complete and cache table is populated

# SD-WAN Use Cases

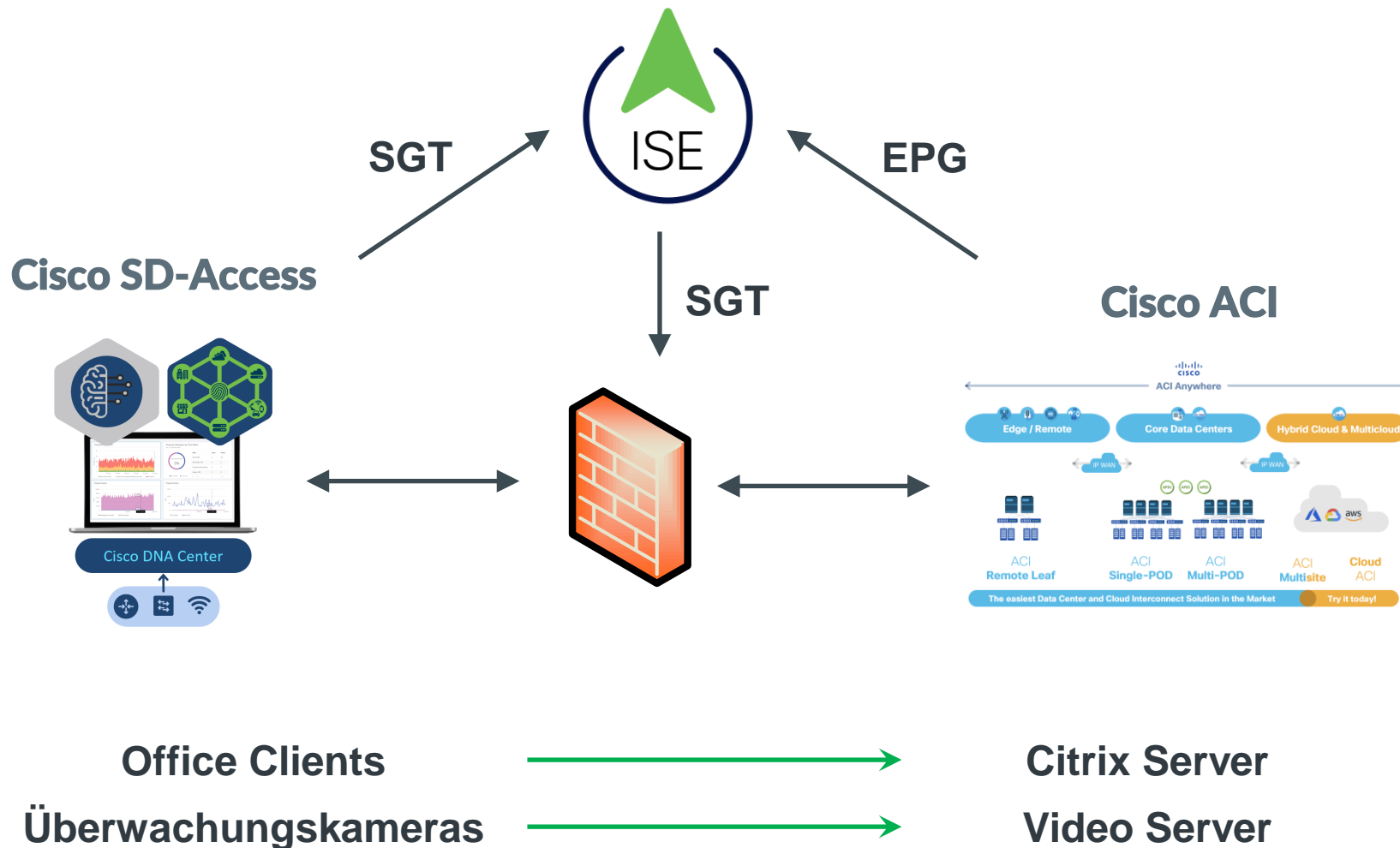


# Cisco ACI Use Cases

## Microsegmentation



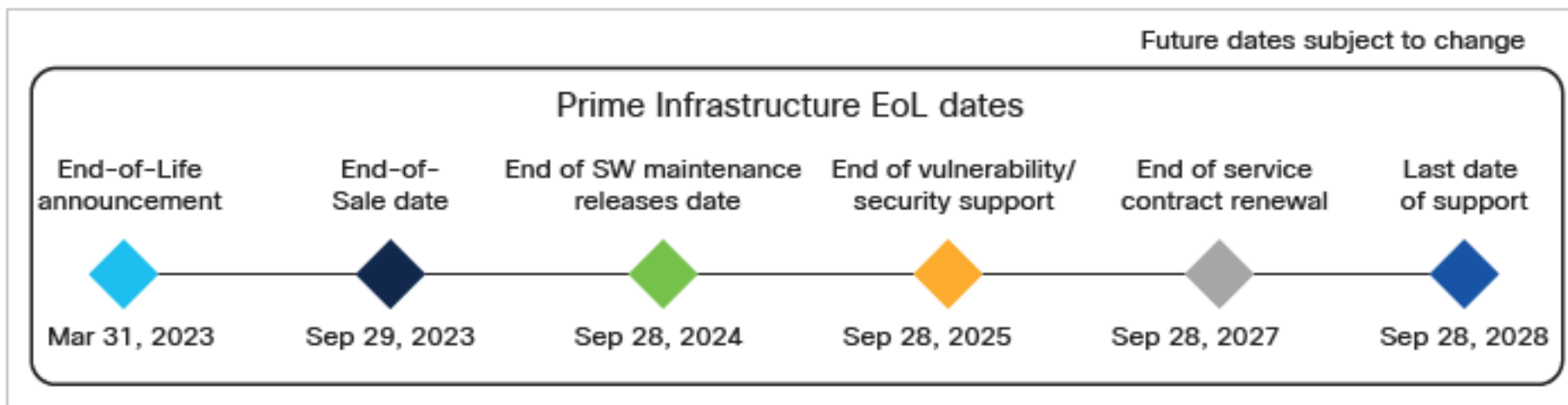
# Multidomain Use Cases



# 02

## Future of Cisco Prime?

# Future of Cisco Prime

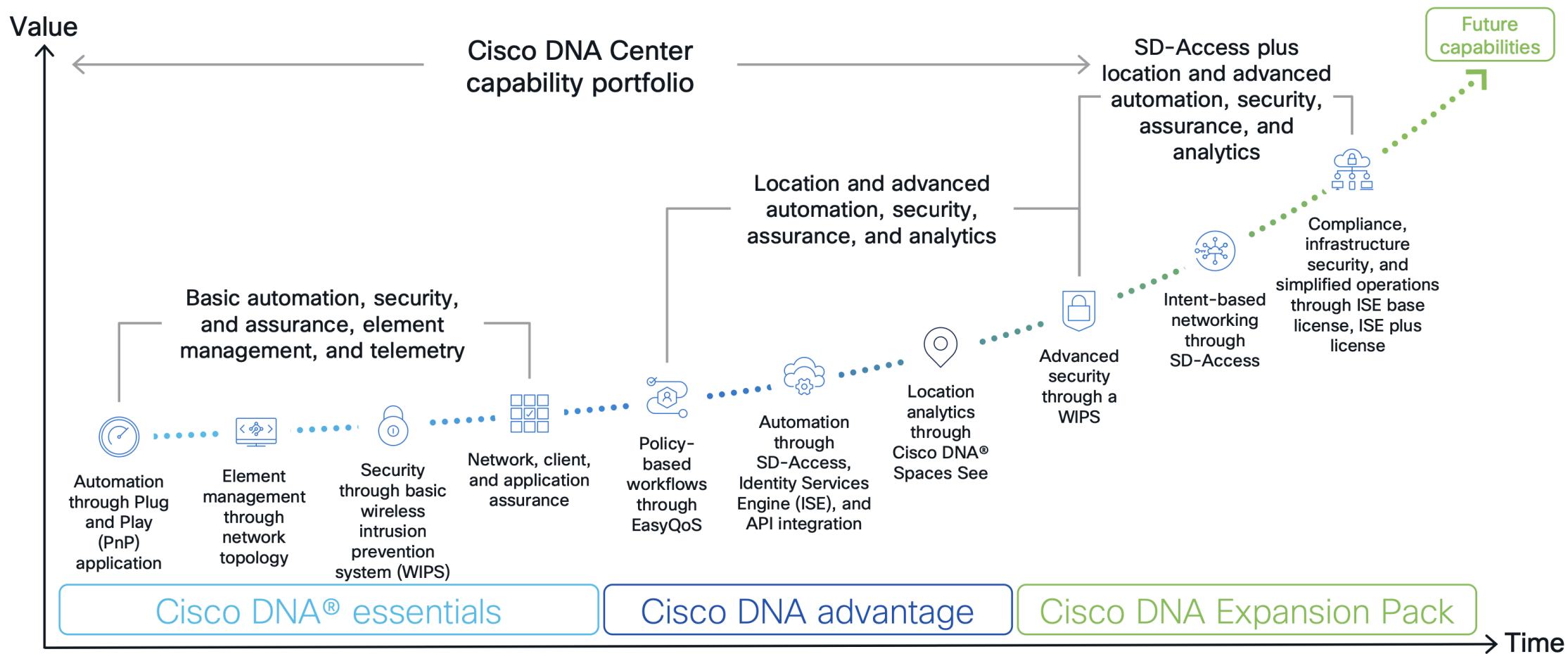


# Nachfolger?

- Nachfolger: Cisco DNA-Center
- 95% Feature Parity
- DNA-Center Device Support
  - Catalyst 9000 Serie
  - Catalyst 3650 und 3850
  - Catalyst 6800 Serie
  - WLCs 2960
  - Alle Access Points (Wave1, Wave2, Wi-Fi6 / 6E)



# DNA gleich SD-Access?



# DNA-Center Deployment Models

## Cisco DNAC Virtual Appliance

Cisco DNA Center Virtual Appliance  
available on:

- Amazon Web Services
- VMWare ESXi

Full feature, scale and device support parity  
with Cisco DNA Center Physical Appliance  
(44c)

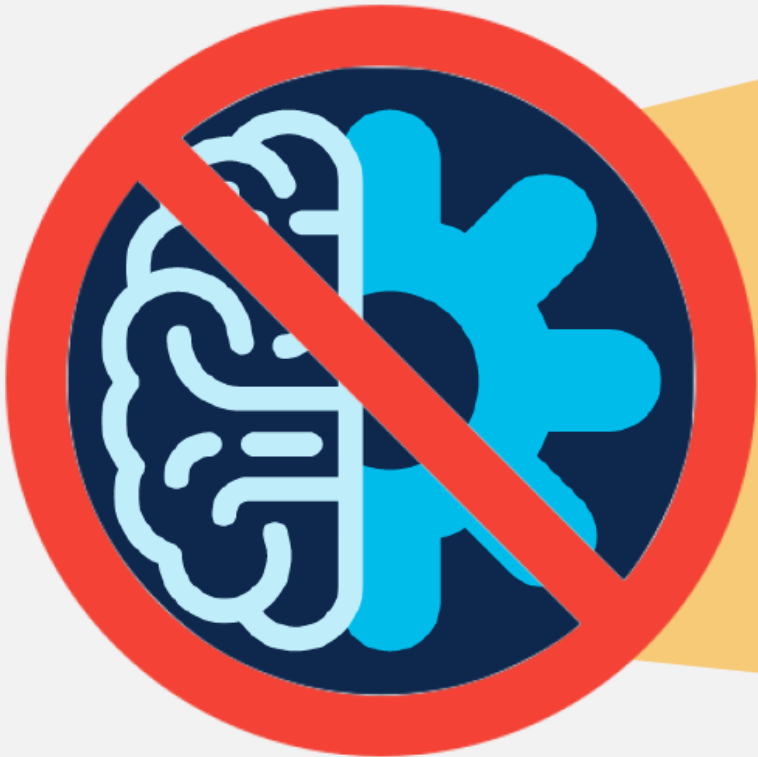


# 03

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## Enterprise Networking + AI

# Klassische Monitoring Plattformen



Lack of Contextual Intelligence

Underlying Issues Are Not Obvious  
in the Short Term

Lack of a Wide-angle Holistic View

# Cisco AI Networks Analytics



Deviations From the Norm



4-Week Data Analysis

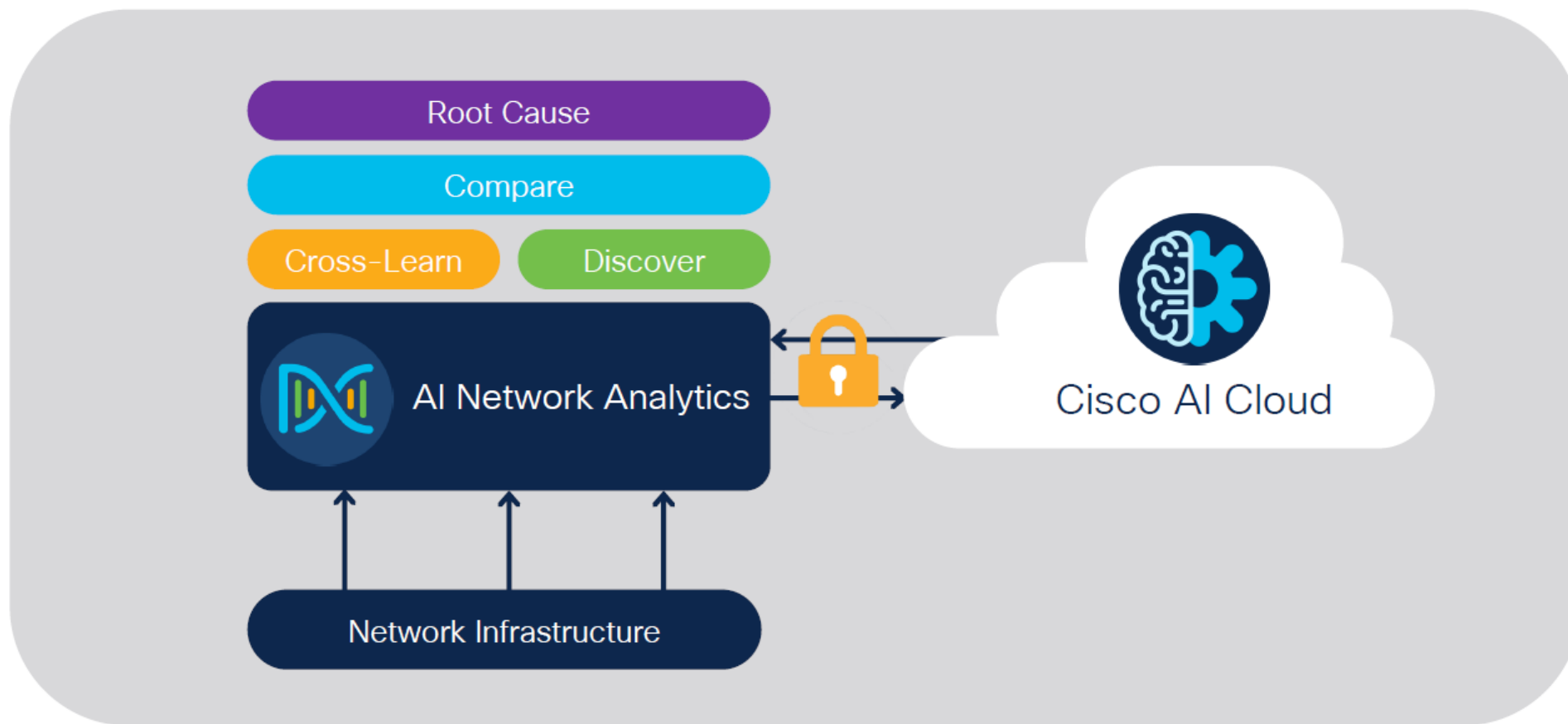


Comparative Analytics

# AI + DNA-Center

## Cisco AI Network Analytics Architecture

Proactively Discover and Root Cause Your Issues



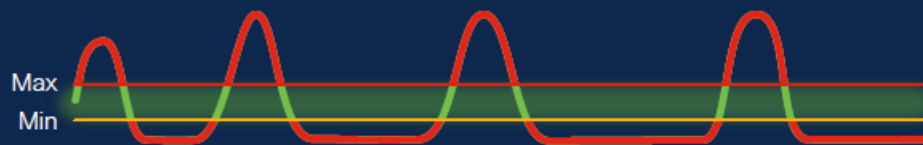
# AI + DNA-Center

## AI-Driven Dynamic Baseline

Learn About the Issues that Really Matter

Custom Thresholds = False Positives

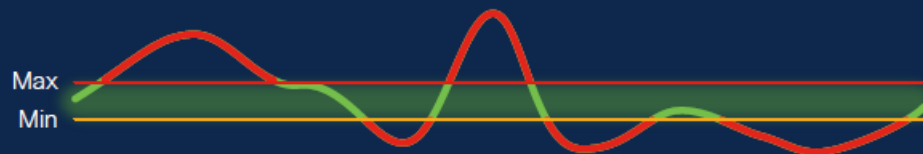
Environment 1



Environment 2

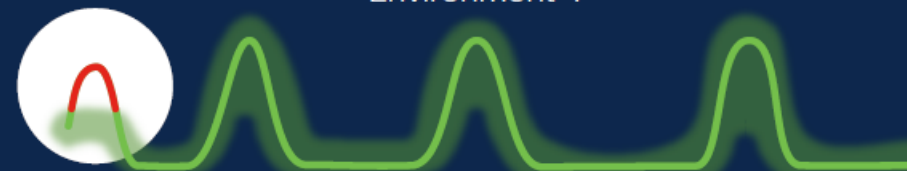


Environment 3

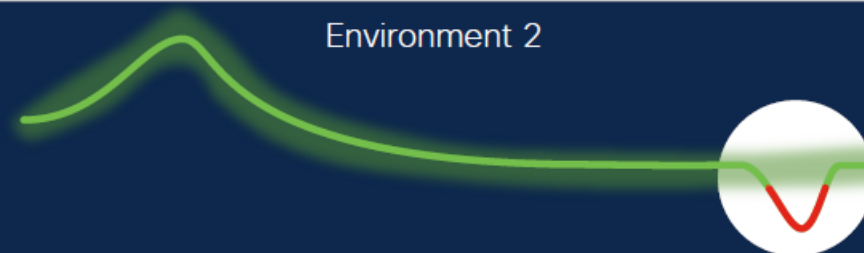


AI-Driven Dynamic Baselines = Relevant Anomalies

Environment 1



Environment 2



Environment 3



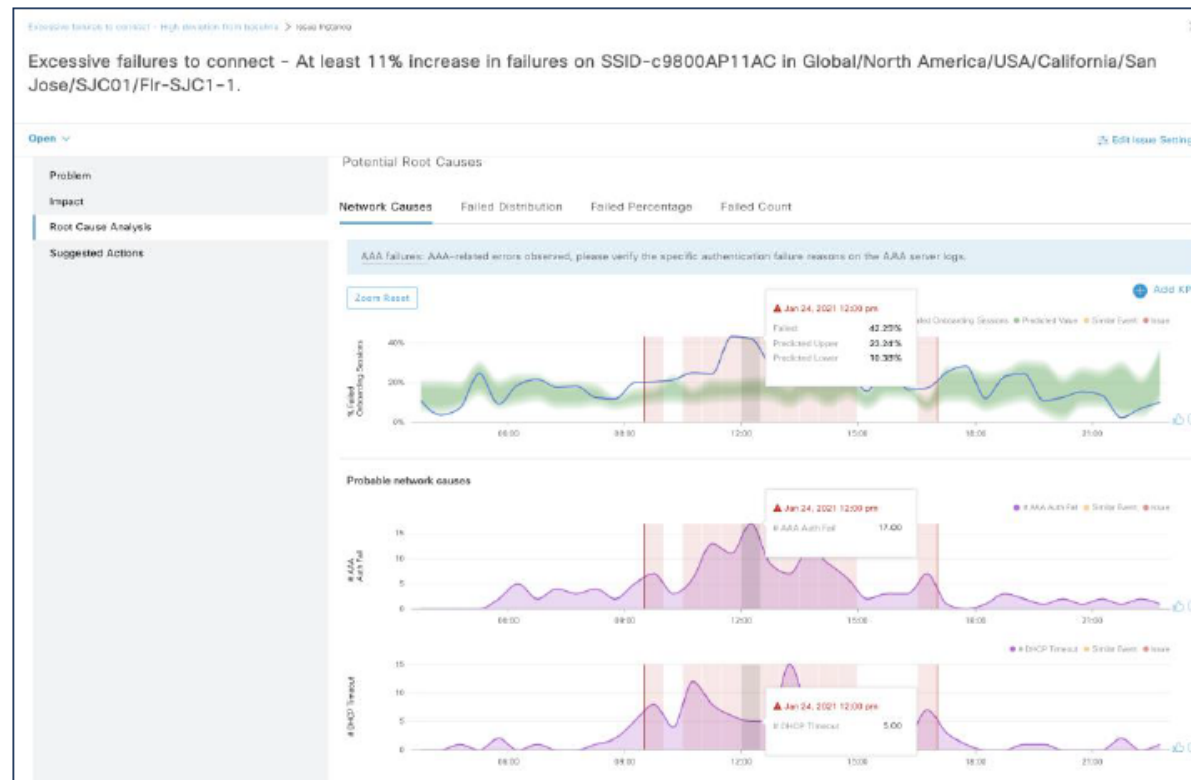
# AI + DNA-Center



## AI Driven Issues

Discover and Root Cause network risks and anomalies from the AI-generated baselines

13 KPIs: Onboarding & Throughput





# AI + DNA-Center

## RRM Configuration on the Catalyst 9800 UI

Configuration > Radio Configurations > RRM

6 GHz Band 5 GHz Band 2.4 GHz Band FRA

General Coverage DCA TPC RF Grouping Spatial Reuse

Profile Threshold For Traps [Reset to Defaults](#)

Throughput (Bps)\*

Noise/Interference/Rogue/CleanAir/SI Monitoring Channels ⓘ

Channel List

RRM Neighbor Discover Type

Monitor Intervals

Neighbor Packet Frequency (seconds)\*

Reporting Interval (seconds)\*

Neighbor Timeout factor\*

For 6 GHz band, some parameters like Interference Percentage, Clients, Noise, Utilization Percentage and RRM Neighbor Discover Mode is configured in default-rf-profile-6ghz

Configuration > Radio Configurations > RRM

6 GHz Band 5 GHz Band 2.4 GHz Band FRA

General Coverage DCA TPC RF Grouping Spatial Reuse

Enable Coverage Hole Detection ☒

Data Packet Count\*

Voice Packet Count\*

Data Packet Percentage\*

Voice Packet Percentage\*

For 6 GHz band, few global coverage parameters like Data RSSI Threshold, Voice RSSI Threshold, Minimum Failed Client per AP and Percent Coverage Exception Level per AP is configured in default-rf-profile-6ghz

Configuration > Radio Configurations > RRM

6 GHz Band 5 GHz Band 2.4 GHz Band FRA

General Coverage DCA TPC RF Grouping Spatial Reuse

Dynamic Channel Assignment Algorithm

Channel Assignment Mode ☒ Automatic ☐ Off

Interval

Anchortime

Channel Assignment Leader

Last Auto Channel Assignment

DCA Channel Sensitivity

## Traditional RRM

Requires Expert Tuning, Lack of Visibility & Serviceability, Reactive Optimizations

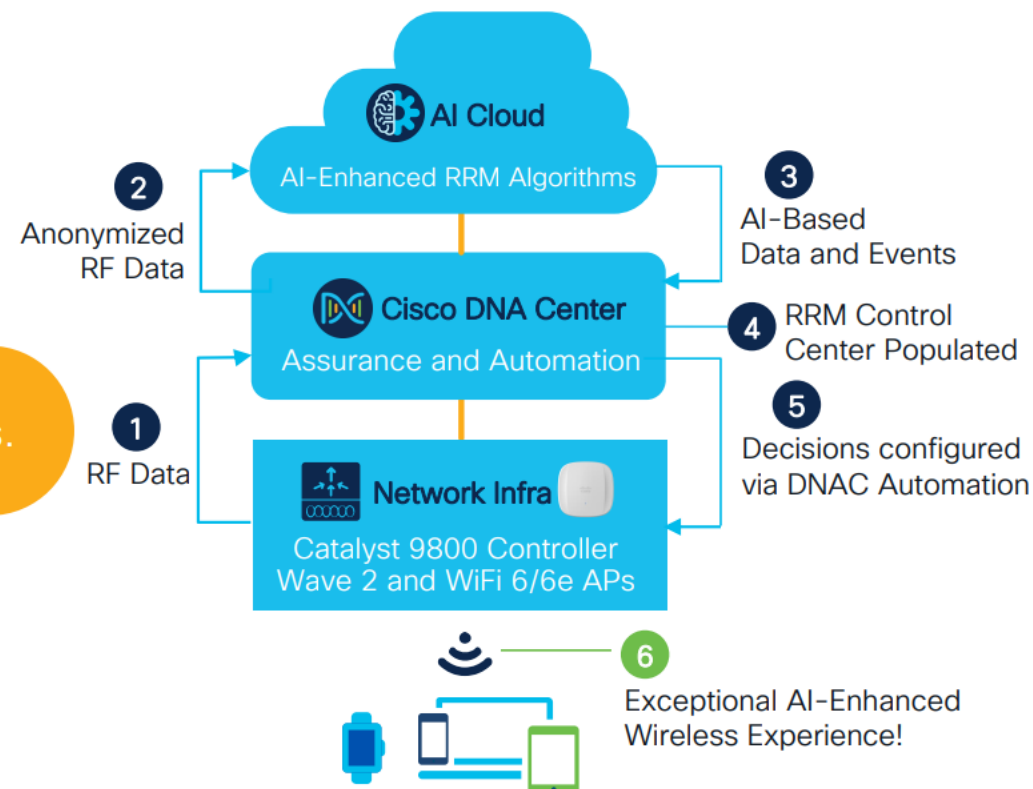
# AI + DNA-Center

## AI-Enhanced RRM Architecture and Data Flow

AI-Enhanced RRM is built into Cisco's AI Cloud.

AI processes 2 weeks of RF data to discover patterns.

Proactive optimizations make Wi-Fi exceptional!



# AI + DNA-Center

## AI Radio Frequency Profile

Edit AI Radio Frequency Profile

Profile Name  
RRM\_RF\_PROFILE

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Basic Settings

Radio Frequency Settings

☒ 2.4 GHz ☒ 5 GHz

Busy Hours ⓘ

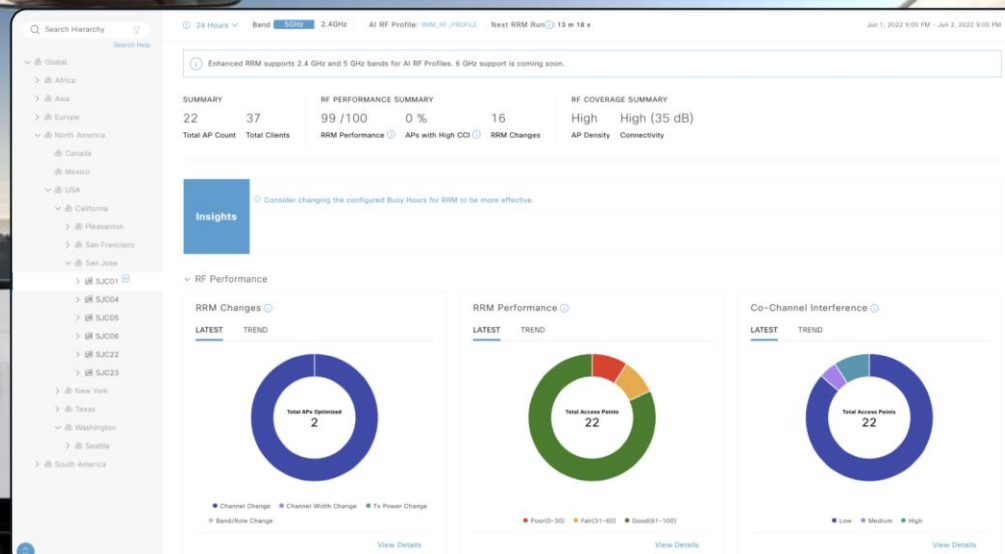
Start time: 17:00 End time: 23:00 Busy Hour Sensitivity ⓘ

☐ Low ☒ Medium ☐ High

Enable RF Settings

	2.4 GHz	5 GHz
Flexible Radio Assignment ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dynamic Channel Assignment ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Transmit Power Control ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dynamic Bandwidth Selection ⓘ	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## AI-Enhanced RRM Control Center



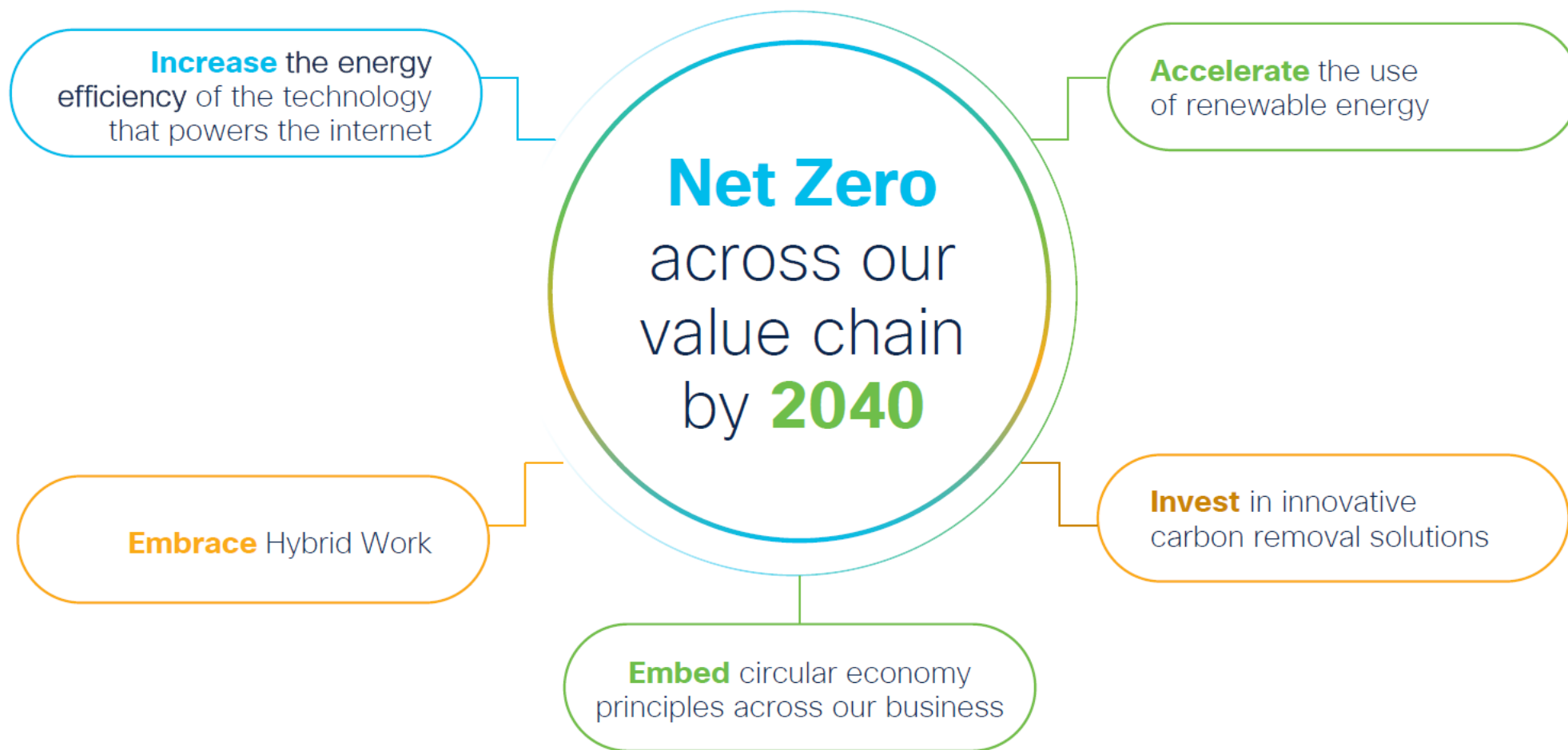
## AI-Enhanced RRM

Policy-driven Configurations, Complete Visibility & Serviceability, Proactive Optimizations

# 04

## Sustainable Networks

# Cisco's Net Zero Goal



# Cisco's Net Zero Goal

## Cisco Catalyst 9000 switches sustainability impact



### Powering smart buildings

90W PoE enables 18% reduction in energy waste



### "No paint project"

Eliminated oil-based wet paint, reducing 300 tons of CO2 and 200 tons of hazardous chemicals, and facilitating recyclability



### Eliminating foam and paper

Working to eliminate foam and paper from packaging in Catalyst® 9300 and 9200 Series



### Increasing bandwidth

Increasing bandwidth without significant increase in power

# Cisco's Net Zero Goal

## Cisco Catalyst 9000 wireless sustainability impact



### Reducing energy consumption

LOW power consumption

PoE analytics gives visibility into power consumption by switch

Designed with field-effect transistors (FETs), reducing power draw by 0.75W on an 802.3at powered device

AI radio resource management (RRM) allows optimized power consumption



### Monitoring the environment

Embedded sensors measure humidity, temperature, and air quality

Provides protection of sensitive IT assets

Detects total volatile organic compounds (TVOC) for regulatory compliance, staff/visitor safety, and COVID workplace protocol



### Reducing waste in shipping

Using multipack shipping for APs to reduce the number of shipments

Eliminating foam and paper from packaging in Catalyst 9100 and 9800

Mounting brackets for all APs can be reused



### Enabling smart buildings

Target Wake Time allows AP and client to schedule data exchange, reducing energy by 3x to 4x compared to Wave 1 and 2 APs

Scheduled on/off SSID on Catalyst 9800 Series

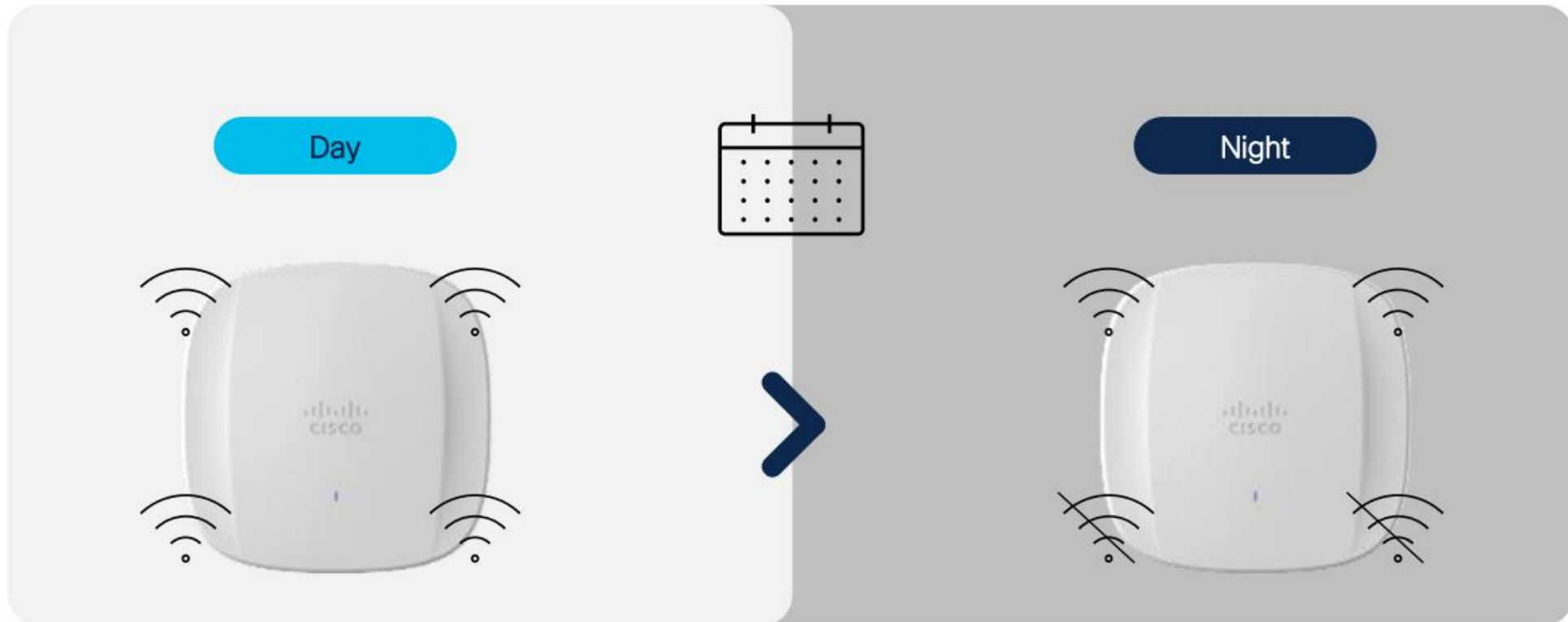
Cisco DNA Spaces rich map integrates environmental monitoring and energy consumption in a console



# Cisco's Net Zero Goal

## AP Power Optimizations Feature Suite

The New AP Power Optimization Feature Suite allows administrators to schedule periods to lower an AP's power consumption through means such as turning off a radio or lowering its spatial stream.





# 05

## Full Stack Observability

# Full Stack Observability

Not my Problem 😊



# Full Stack Observability

## Application and Business Insights Across Stack

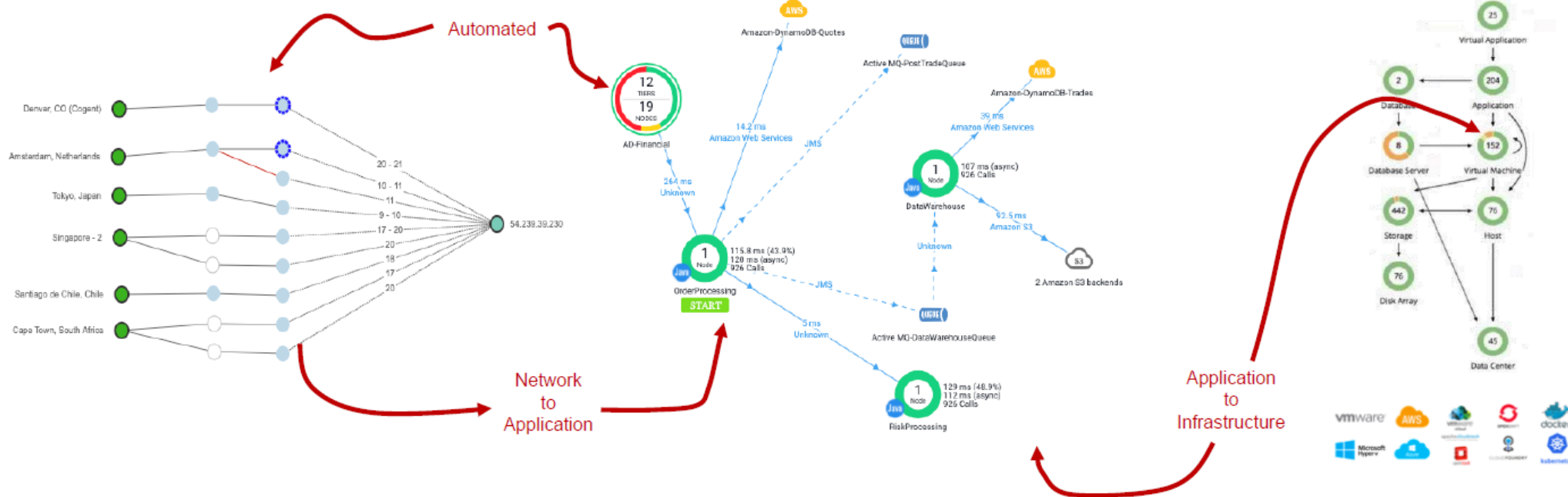
Network



Application



Infrastructure



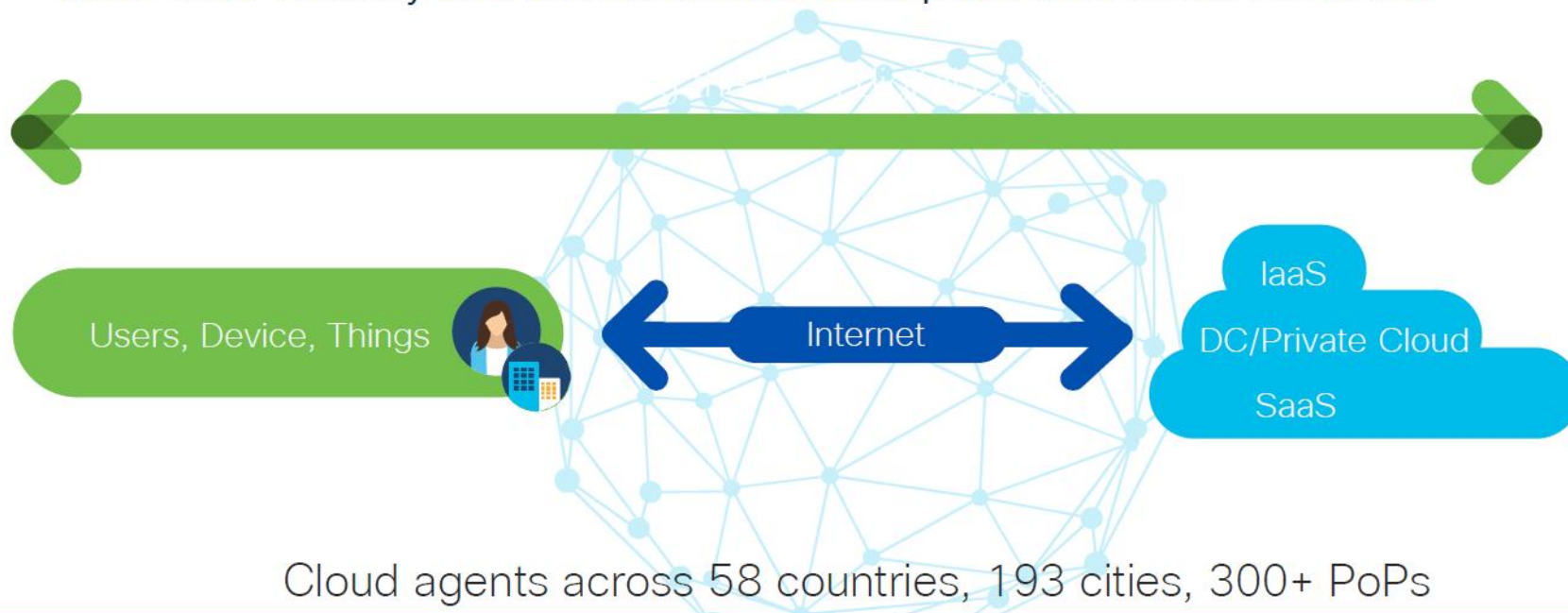
# Cisco Thousand Eyes

## ThousandEyes



Real-time visibility and action across enterprise and cloud networks

Application  
Dependency  
Monitoring



160+  
Global 2000  
Companies

85+  
Fortune 500  
Companies

6 of the 7  
Top US Banks

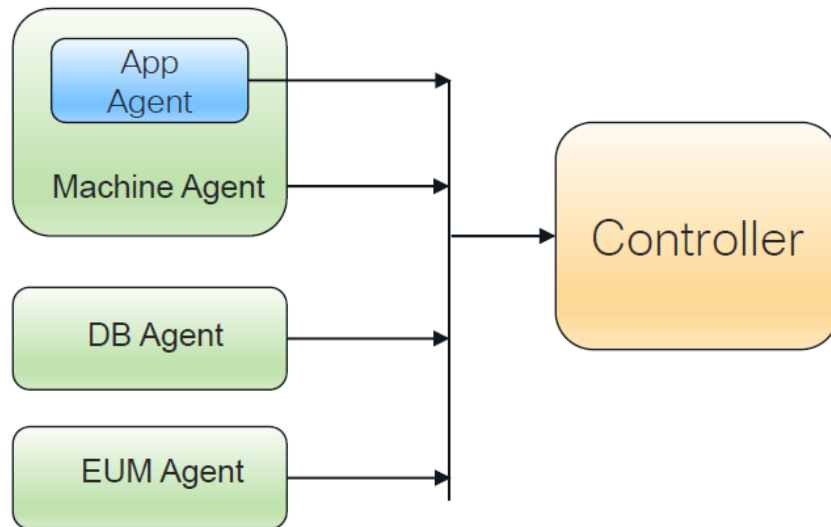
20 of the 25  
Top SaaS Companies

8 of the 10  
Top Global Software  
Companies

# Cisco App Dynamics

## AppDynamics Components

Hybrid  
Application  
Monitoring



- **App Agents**
  - Instrumenting an application adds the AppDynamics application agent (app agent) into the runtime process of the application.
- **Machine Agents**
  - Visibility into the HW where the App is hosted.
  - Server OS, %CPU, mem util, disk, network I/O util etc
- **Database Agents**
  - Collects performance metrics about the DB instances.
- **EUM Agent**
  - Extends the visibility on the performance from end user point of view.
- **Controller**
  - Main brain to consume and process the metrics collected by various agents.

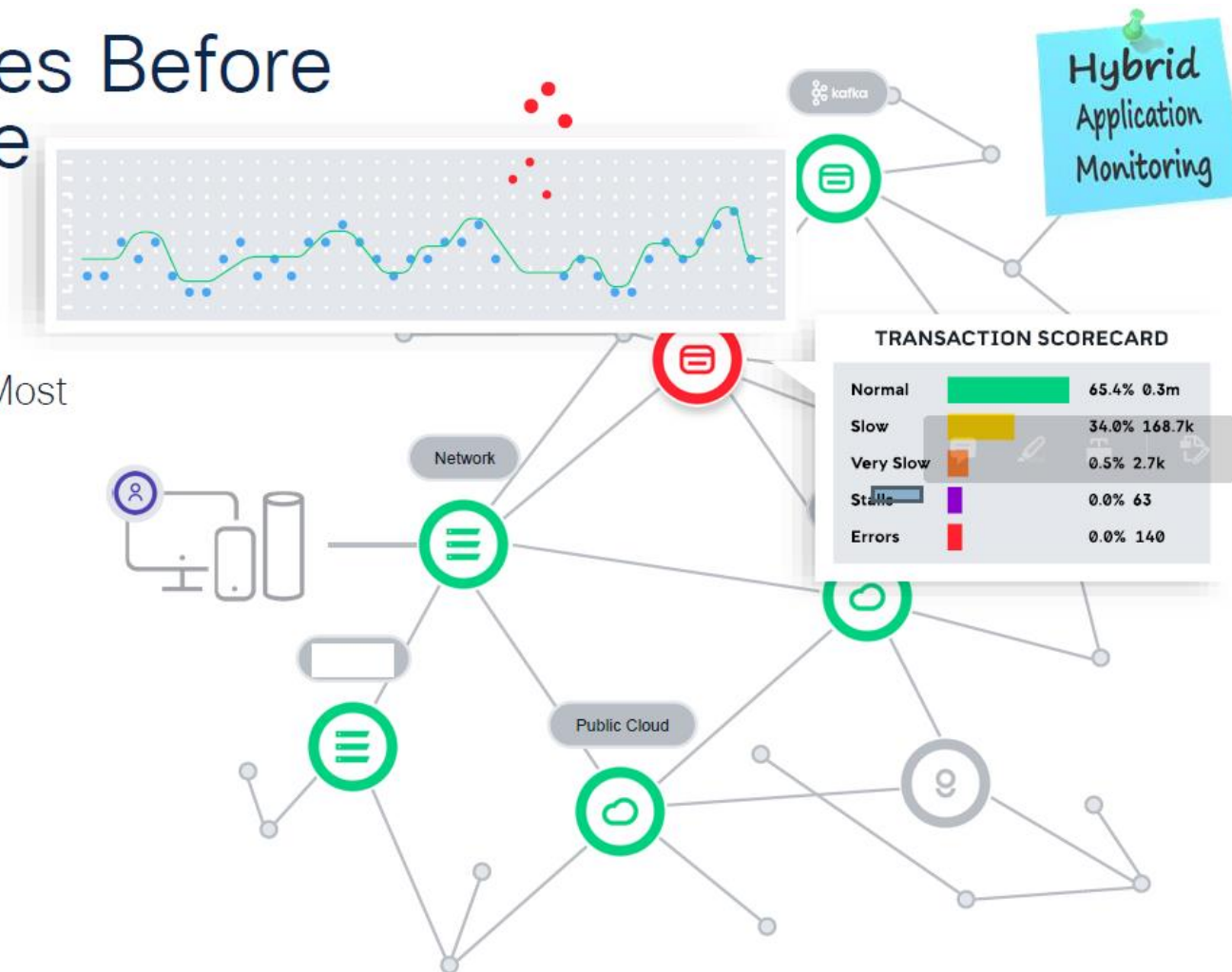
# Cisco App Dynamics

## Detection of Issues Before Customers Notice



Move Fast,  
Follow Everything &  
Focus on What Matters Most

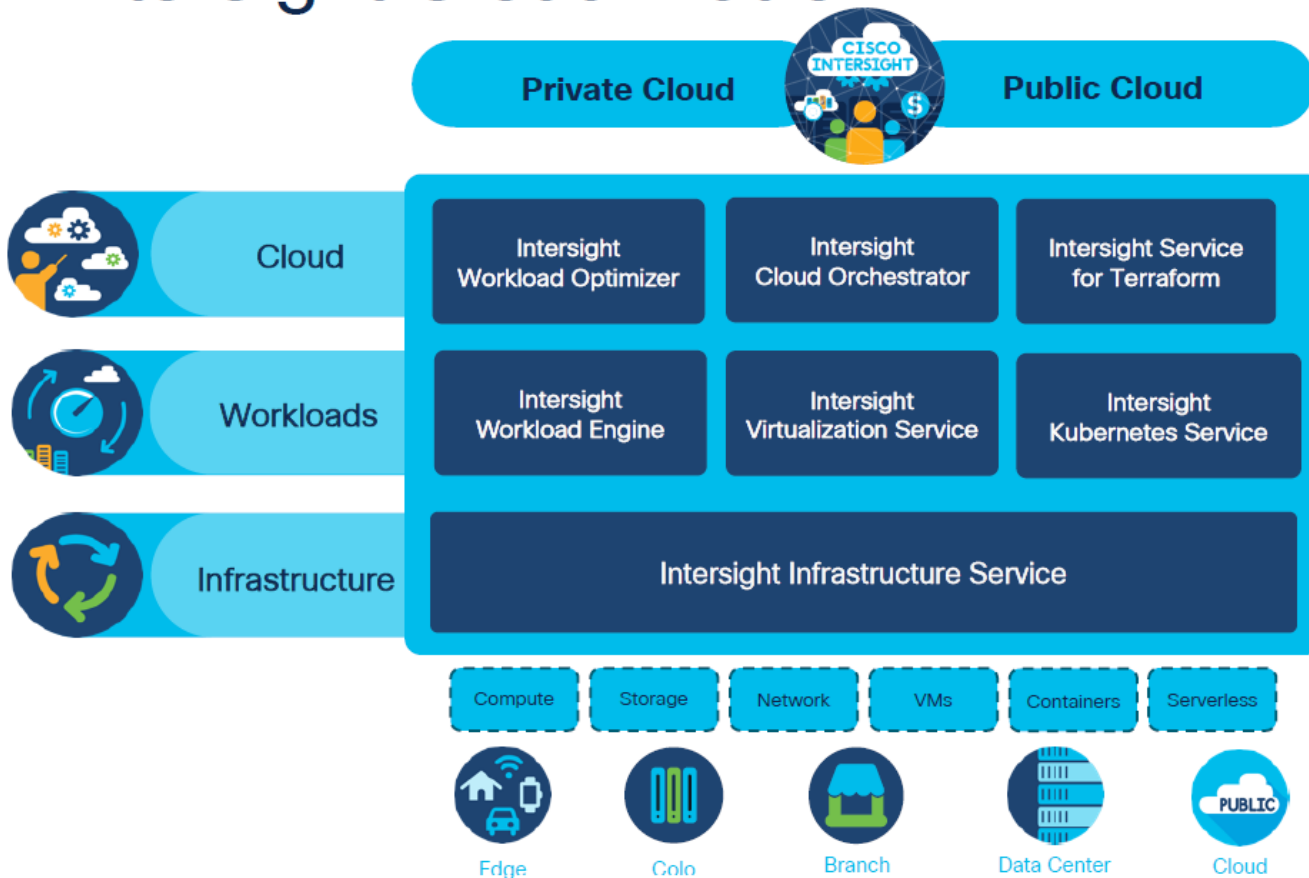
- Automatic Baselines for Every Metric
- Machine Learning Anomaly Detection
- Prevent IT Alert Storms





# Intersight

## Intersight Cloud Platform



Application  
Resource  
Optimization

Full Stack Multi-  
tenanted Cloud Platform

Baremetal-aaS, VM-aaS\*,  
K8s-aaS, Function-aaS\*

Hybrid-cloud  
Automation &  
Orchestration

Hybrid-cloud  
Observability &  
Optimization

Delivered as SaaS  
(with on prem options)

\*roadmap

# 06

## Wireless Value Generation



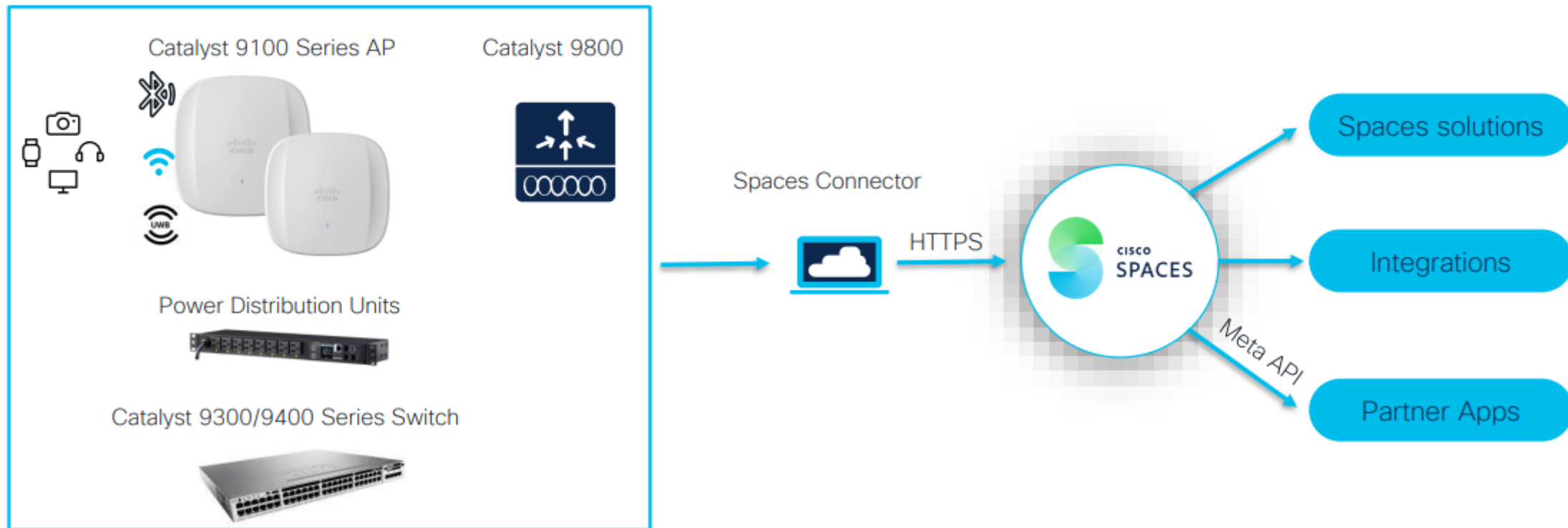
# Cisco Spaces

Use your network as foundation



# Cisco Spaces

## Cisco Spaces Architecture with Connector





**Vielen Dank für Ihre  
Aufmerksamkeit  
Fragen?**