Cisco.Network.Intuitive

FastLane IT Forum

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Ziele dieser Session

- New Era of Networking - Was ist darunter zu verstehen?
- Software Defined Access – Wie revolutioniert SDA das Netzwerk der Zukunft
- Wie kann ich das Netzwerk als Sensor nutzen und Analyse und Assurance Funktionalitäten mich dabei unterstützen

Announced June 21st

THE NETWORK. INTUITIVE.

Networking at the Speed of Software

Software Defined Access
(*For existing and next-gen infrastructure*)

Reduce OpEx with Simplified Management

Cisco DNA Center

See and Act on All Threats

Encrypted Traffic Analytics

Infrastructure Agility

Catalyst 9000 Portfolio
with Programmable ASICs

Predict Issues Before They Happen

Assurance with Network Data Platform

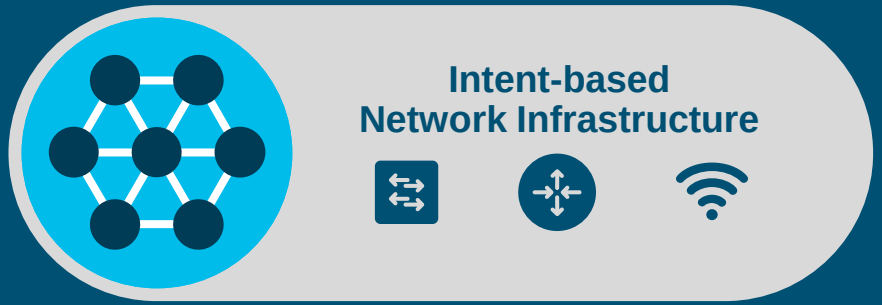
The Network. Intuitive.

Powered by Intent. Informed by Context.

Programmable

Integrated

Secure



The Network. Intuitive.

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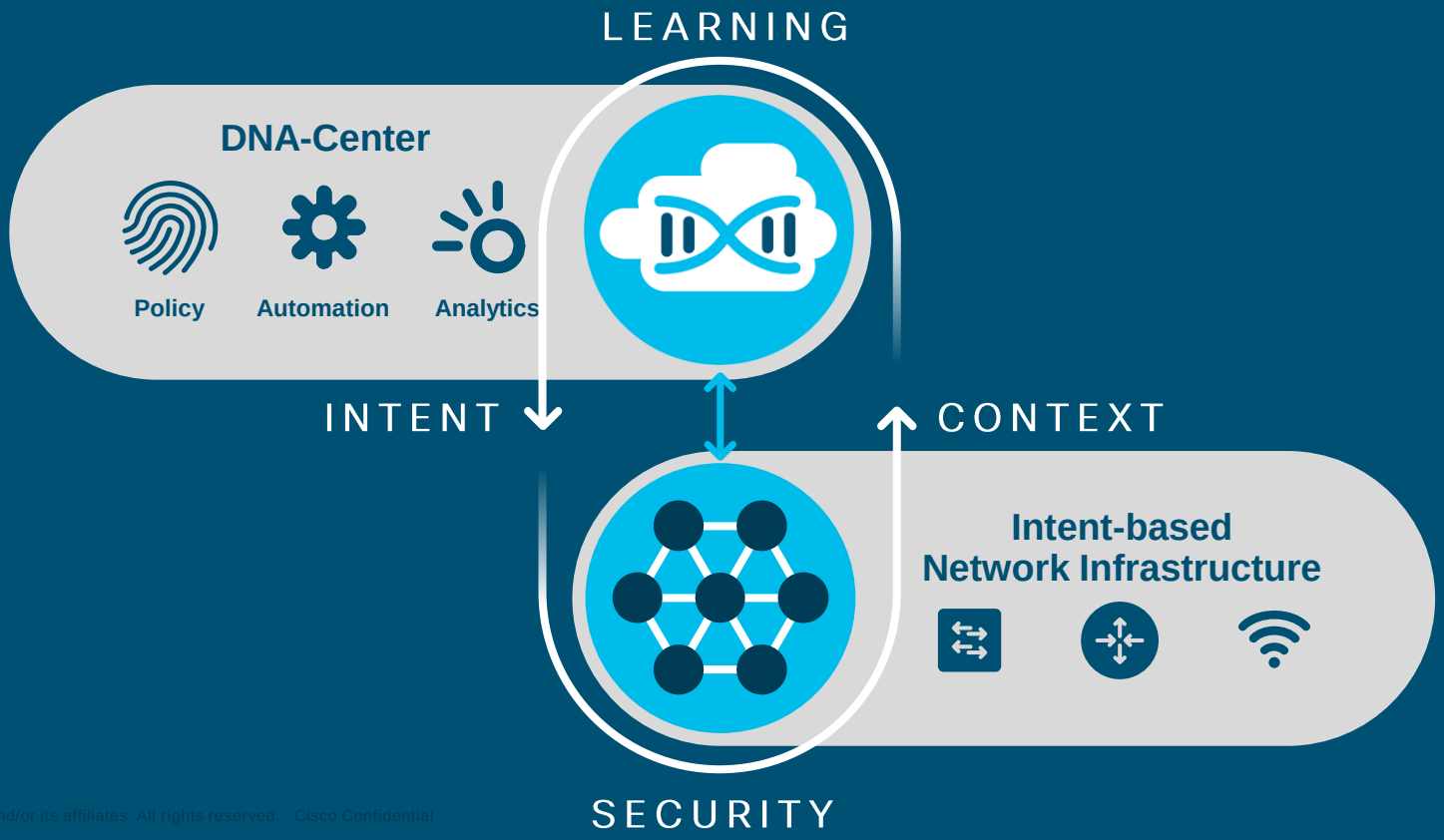
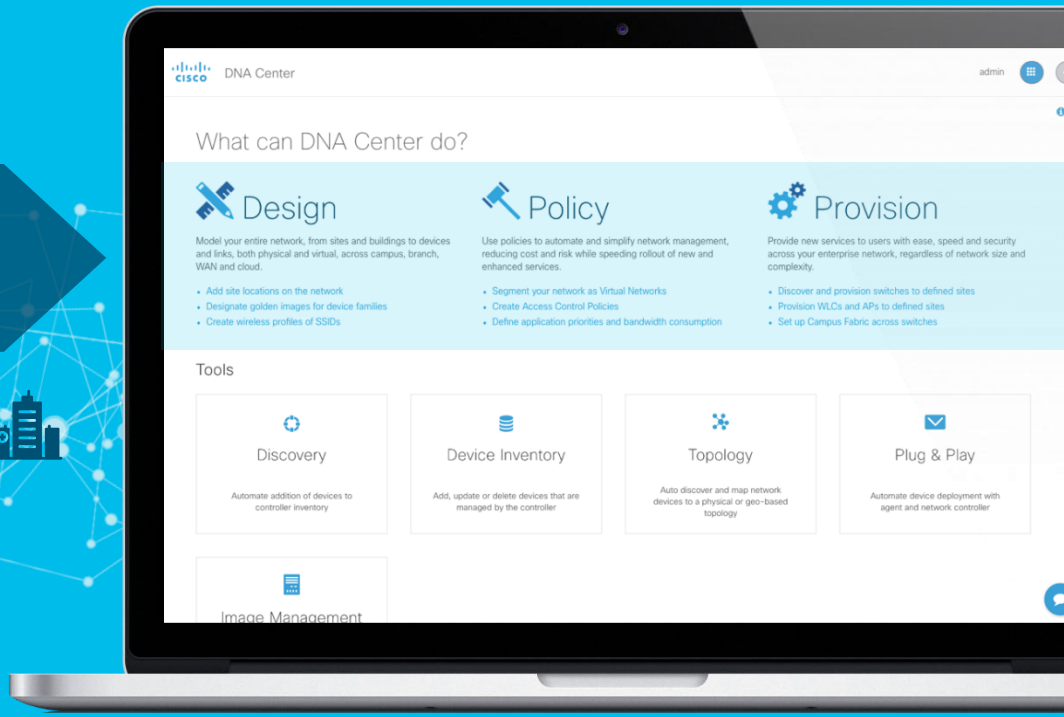


The New Way

Made simple by The Network. Intuitive.

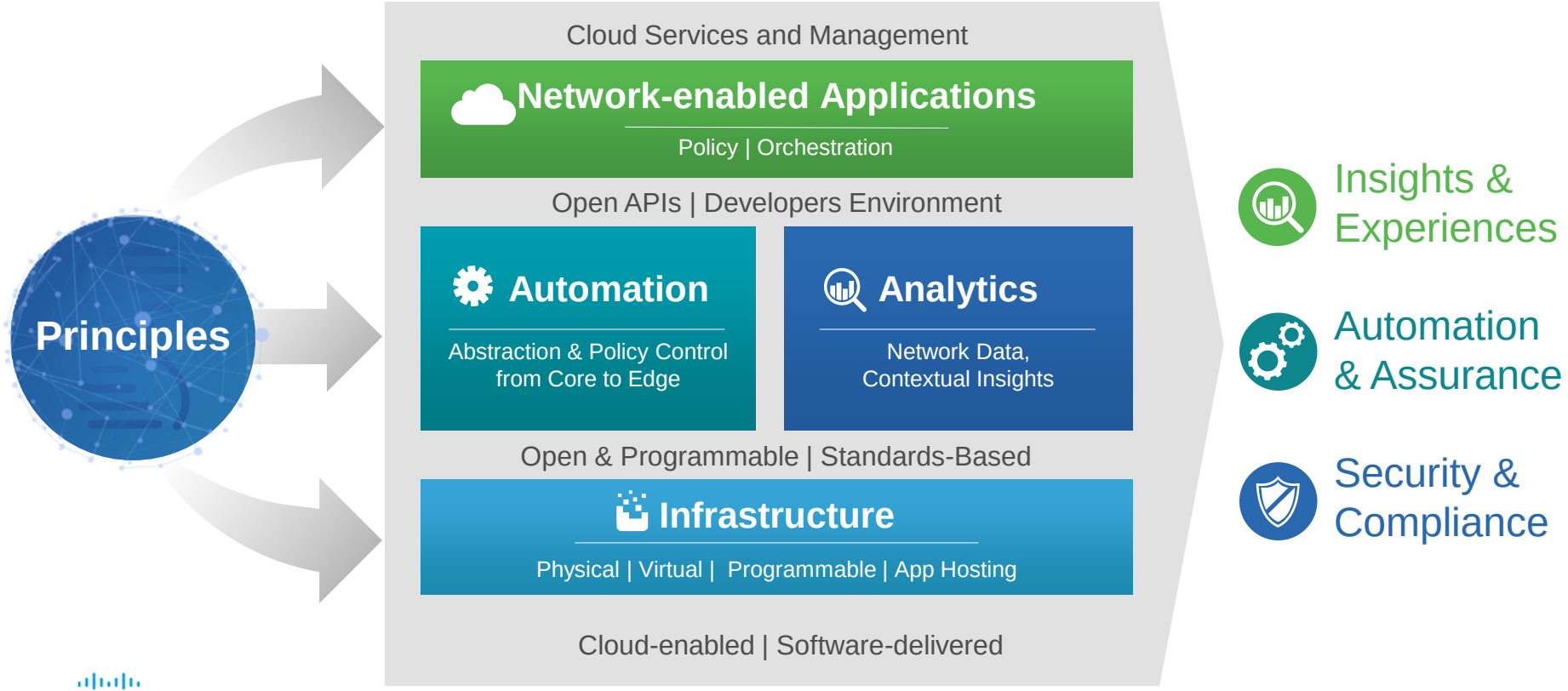
INTENT



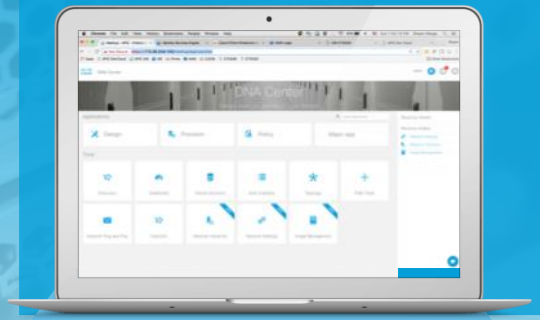
Cisco Digital Network Architecture

Software Defined Access

DNA Programmability and Automation



A new era of Networking begins - Software Defined Access



DNA Center: Simple Workflows

DESIGN — PROVISION — POLICY — ASSURANCE

DNA Center

Controller

Analysis/Assurance (Network Data Platform) — **Automation** (APIC-EM 2.0) — **Policies & Segmentation** (Identity Services Engine 2.3)

Fabric

Routers **Switches** **Wireless AP** **WLC**

What can DNA Center do?

Design

Model your entire network, from sites and buildings to devices and links, both physical and virtual, across campus, branch, WAN and cloud.

- Add site locations on the network
- Designate golden images for device families
- Create wireless profiles of SSIDs

Policy

Use policies to automate and simplify network management, reducing cost and risk while speeding rollout of new and enhanced services.

- Segment your network as Virtual Networks
- Create scalable groups to describe your critical assets
- Define segmentation policies to meet your policy goals

Provision

Provide new services to users with ease, speed and security across your enterprise network, regardless of network size and complexity.

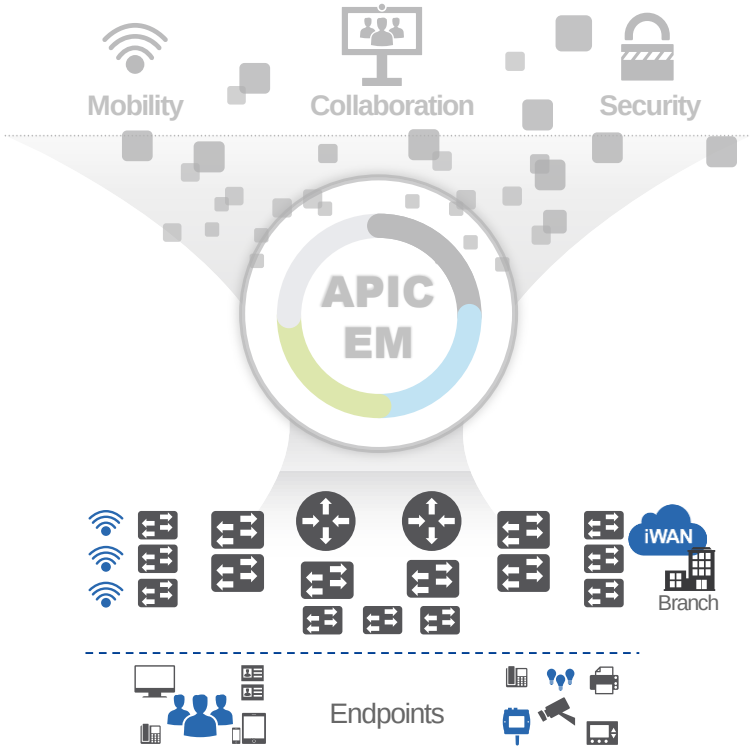
- Discover and provision switches to defined sites
- Provision WLCs and APs to defined sites
- Set up Campus Fabric across switches

Assurance

Use proactive monitoring and insights from the network data platform to predict problems and ensure that policy and configuration changes achieve the the consistent, high-quality user experience you want.

- Assurance Health
- Assurance Issues

Software Defined Access



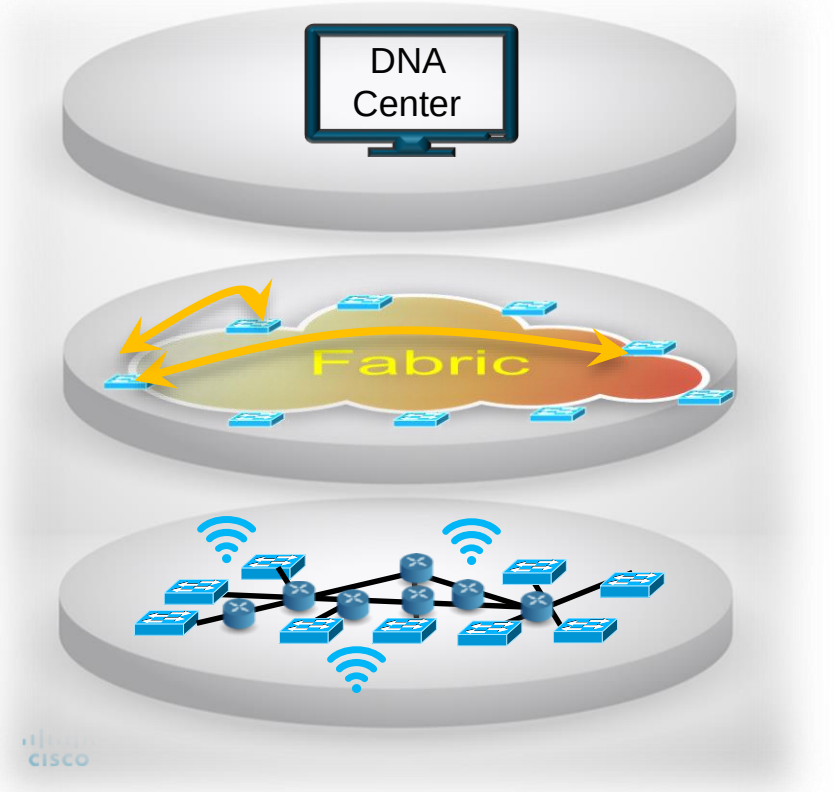
Secure Segmentation
- Flexible User/Device Grouping
- Basic Segmentation
- Micro Segmentation

Simplified Provisioning
- Device Onboarding
- Automated Workflows
- Consistent Policy

Monitoring & Troubleshooting
- Easy Management
- Proactive Network Health Monitoring
- Contextual Analytics

Software Defined Access (SD-Access)

Bringing Everything Together



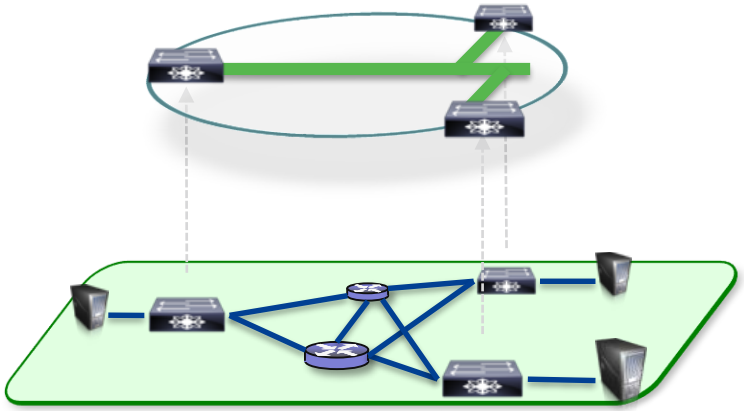
Controller-based Management

Programmable Overlay

Simplified L3 Underlay

Campus Fabric
Key Components

- LISP based Control-Plane
- VXLAN based Data-Plane
- Platform for seamless TrustSec integration

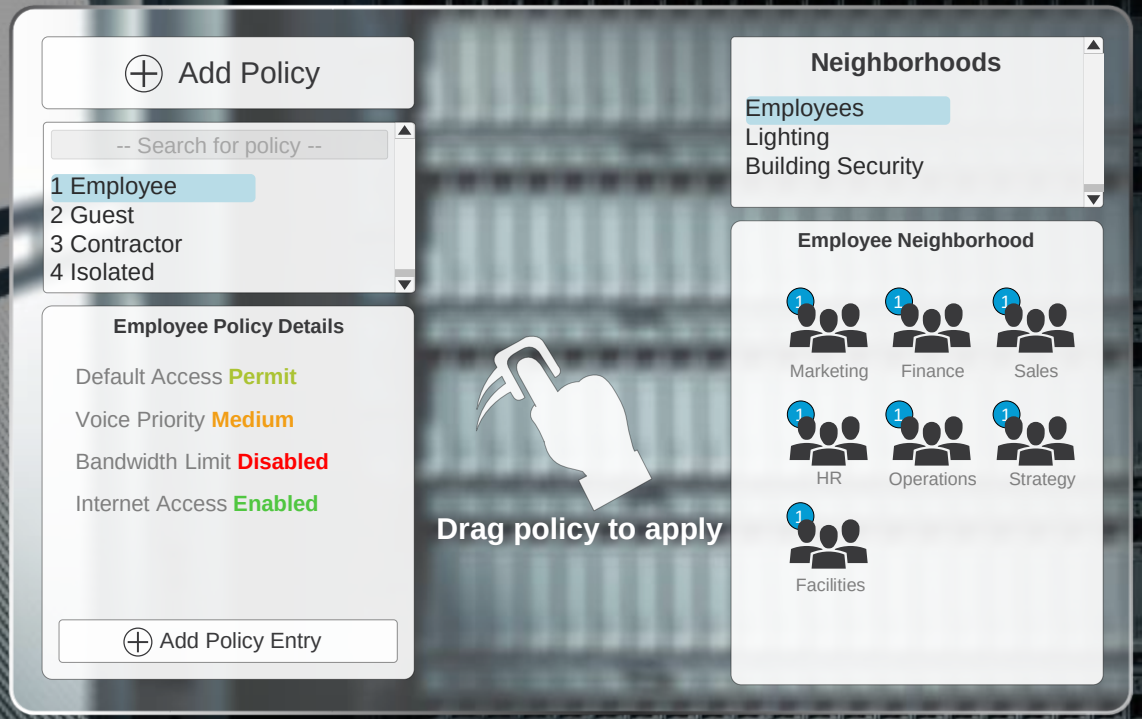


Key Differences

- L2 + L3 Overlay vs. L2 or L3 Only
- Adds VRF + SGT into Data-Plane
- Host Mobility with Anycast Gateway
- Virtual Tunnel Endpoints (No Static)
- No Topology Limitations (Basic IP)
- Policy and Logical Grouping

Secure, Policy Based Automation

Easy Segmentation & Policy Enforcement



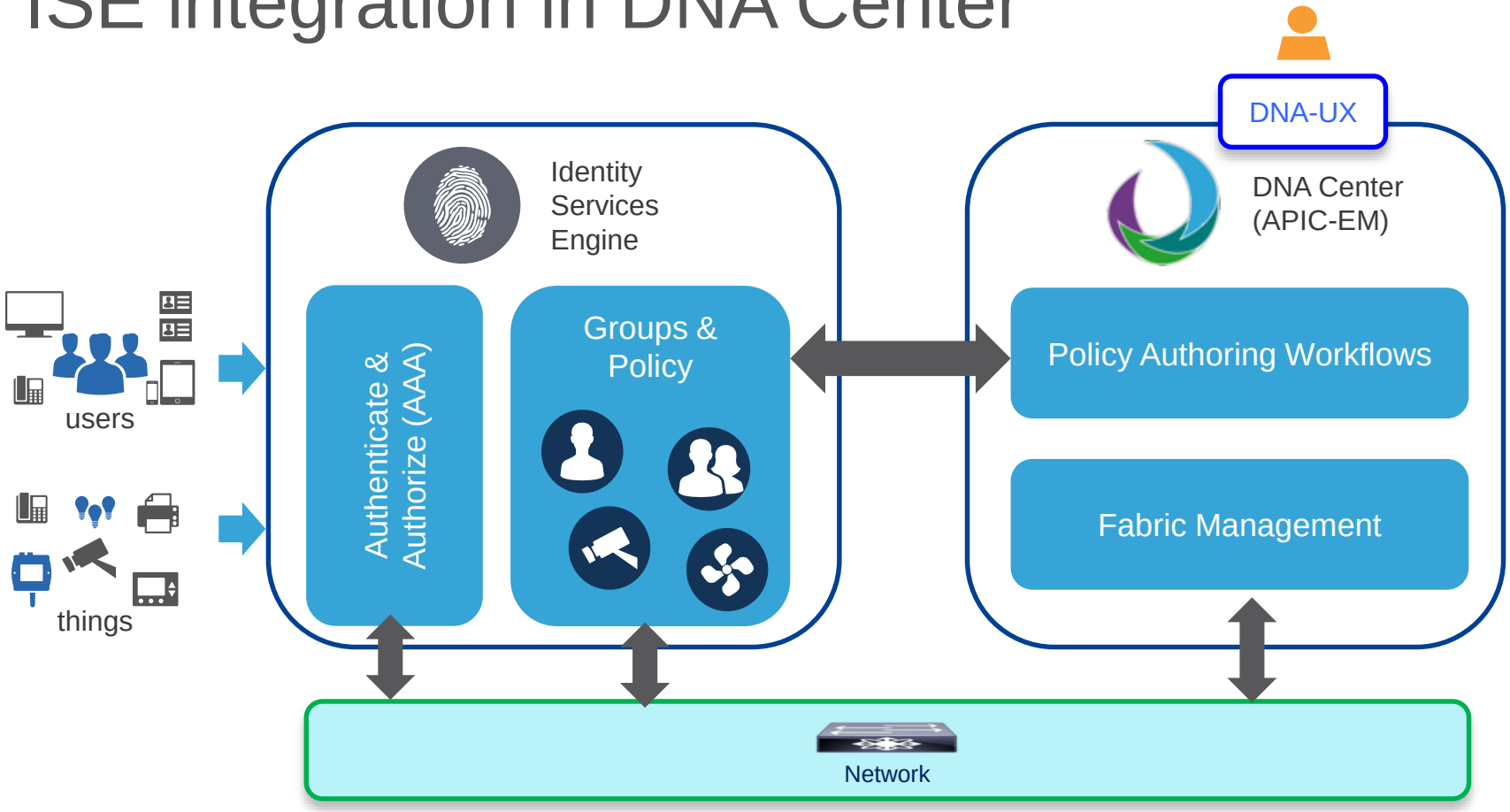
Old Way

- VLAN & IP address based
- Isolate employees from, systems (i.e. Building Mgt.)
- Deal with policies, users & policy violations manually

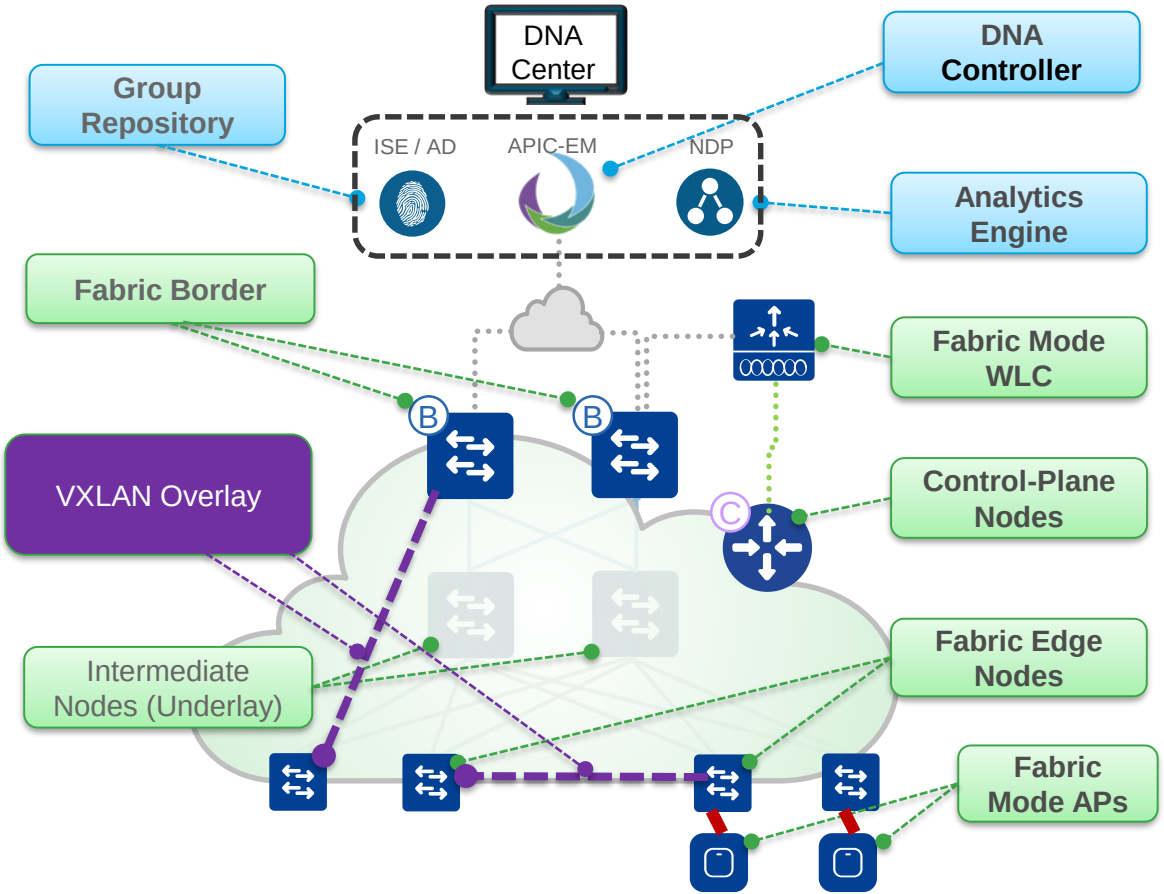
Software Defined

- No IP address dependency with Anycast Gateway & SGT
- Define Policy once: LAN, WLAN and WAN
- IP and Policy follows User

ISE integration in DNA Center



SD-Access Architecture



- **Control-Plane Nodes** – Map System that manages Endpoint ID to Device relationships
- **Border Nodes** – A Fabric device (e.g. Core) that connects External L3 network(s) to the SD-Access Fabric
- **Edge Nodes** – A Fabric device (e.g. Access or Distribution) that connects Wired Endpoints to the SD-Access Fabric
- **Fabric Wireless Controller** – Wireless Controller (WLC) that is fabric-enabled
- **Fabric Mode APs** – Access Points that are fabric-enabled.
- **Intermediate Nodes** – Underlay
- **Overlay** – Endpoint traffic carried within VXLAN frames between Fabric Edges and between Fabric Edges and Border Nodes

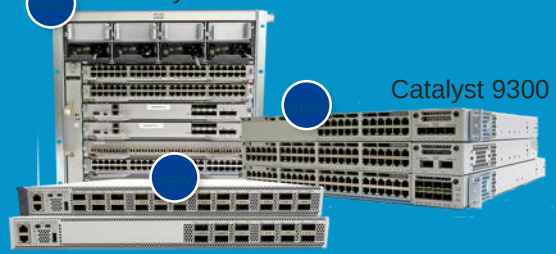
Produktupdate

Catalyst 9K

SD-Access Platform Support

A single fabric for your digital ready network

Switching




Catalyst 4500E


Catalyst 6K


Nexus 7700


Catalyst 3850 and 3650

Routing


ASR-1000-X


ASR-1000-HX


ISR 4430


ISR 4450


ISR 4351


ISR 4331


ENCS 5400**


CSRv

Wireless


AIR-CT5520


AIR-CT8540


AIR-CT3504


Wave 2 APs (1800, 2800,3800)


Wave 1 APs* (1700, 2700,3700)

SDA Extension


Catalyst Digital Building


Catalyst 3560-CX


IE Switches** (2K/3K/4K/5K)

*with Caveats
**Future

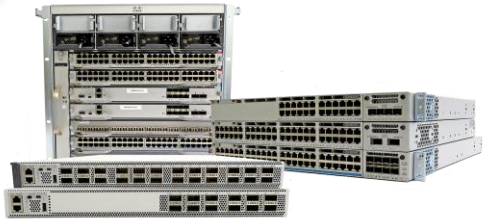
New Era in Networking

Beyond Days of Convergence

Previous Era

New Era

Software Defined Access
(SD-Access)

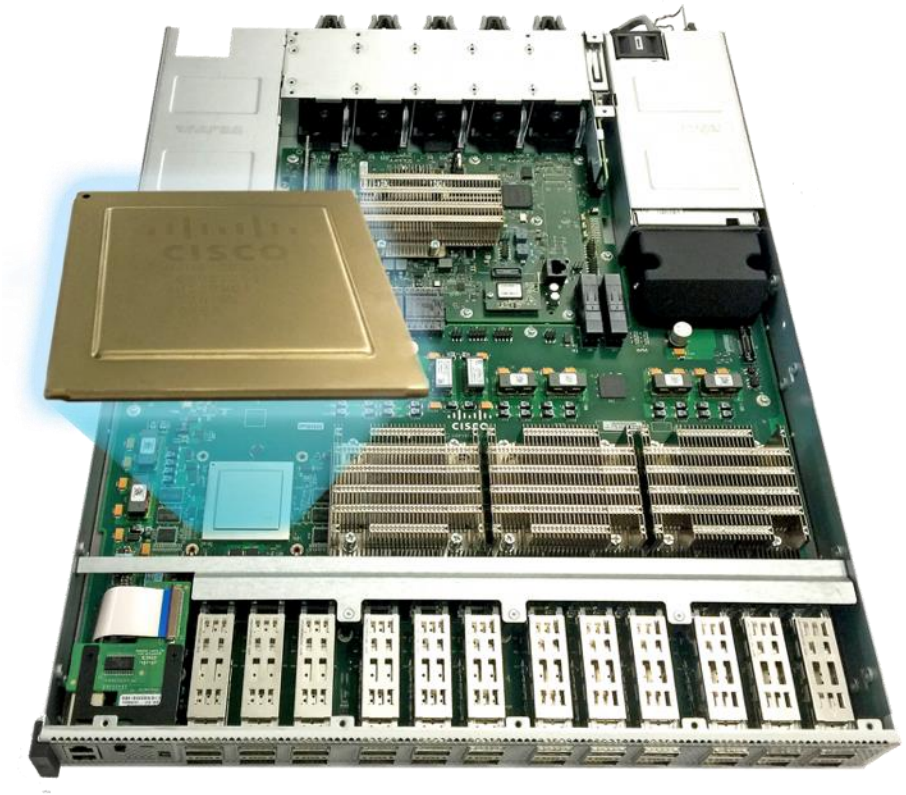


(9K Series)

SD-Access - *Policy Based Automation from Edge to Cloud*

UADP 2.0 - Next Generation of ASIC Innovation

- **Investment Protection**
  Flexible Pipeline
- **Universal Deployments**
  Adaptable Tables
- **Enhanced Scale/Buffering**
  Multicore resource share



384K Flex Counters

Shared Lookup

Up to 240GE Bandwidth

Up to 2X to 4X forwarding + TCAM

Embedded CPUs

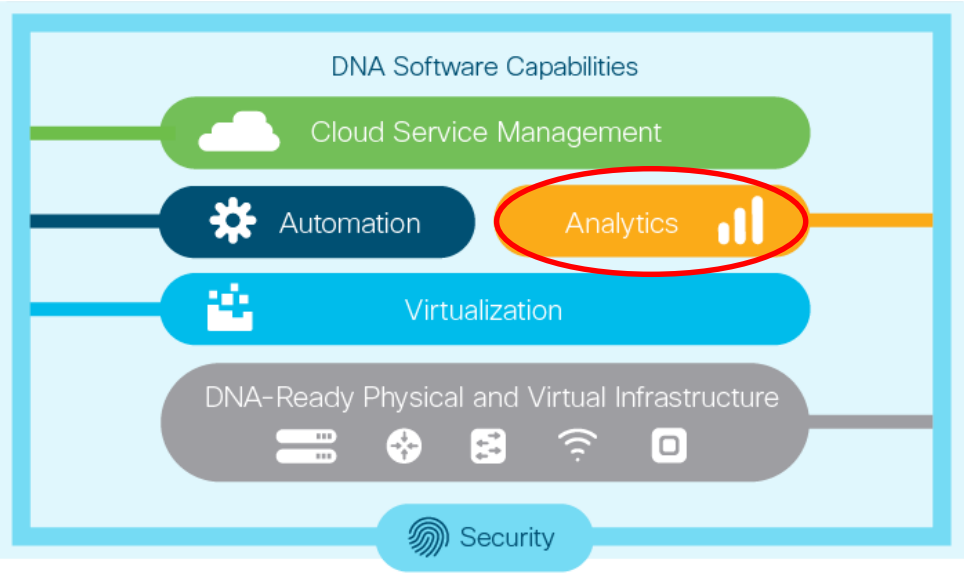
Up to 32MB Packet Buffer

Up to 64K x2 Netflow Records

Produktupdate

Analytics & Assurance

What we are announcing



DNA Center

- **Built-in expertise to manage and deploy end-to-end network services with a central management (July 2017)**

Network Data Platform for Assurance

Analytics collects data from users, devices, and applications and uses machine learning to proactively identify problems (Nov 2017)

Software-Defined Access

- **Dynamically adapt to changing needs with policy-based management of the network fabric (Jul 2017)**

Enhanced Network as a Sensor

- **Uncover threats hidden in encrypted traffic without decryption (Sept 2017)**

Catalyst 9000 Series Switches

- **First infrastructure devices purposely designed for DNA**
- **9500 (Jun 2017), 9400 (August 2017), 9300 (June 2017)**

Components of DNA Assurance

Primary focus areas for DNA Assurance and analytics

1. End-to-end visibility:
   Insights correlated to across network: WAN, WLAN, LAN, network services, etc.

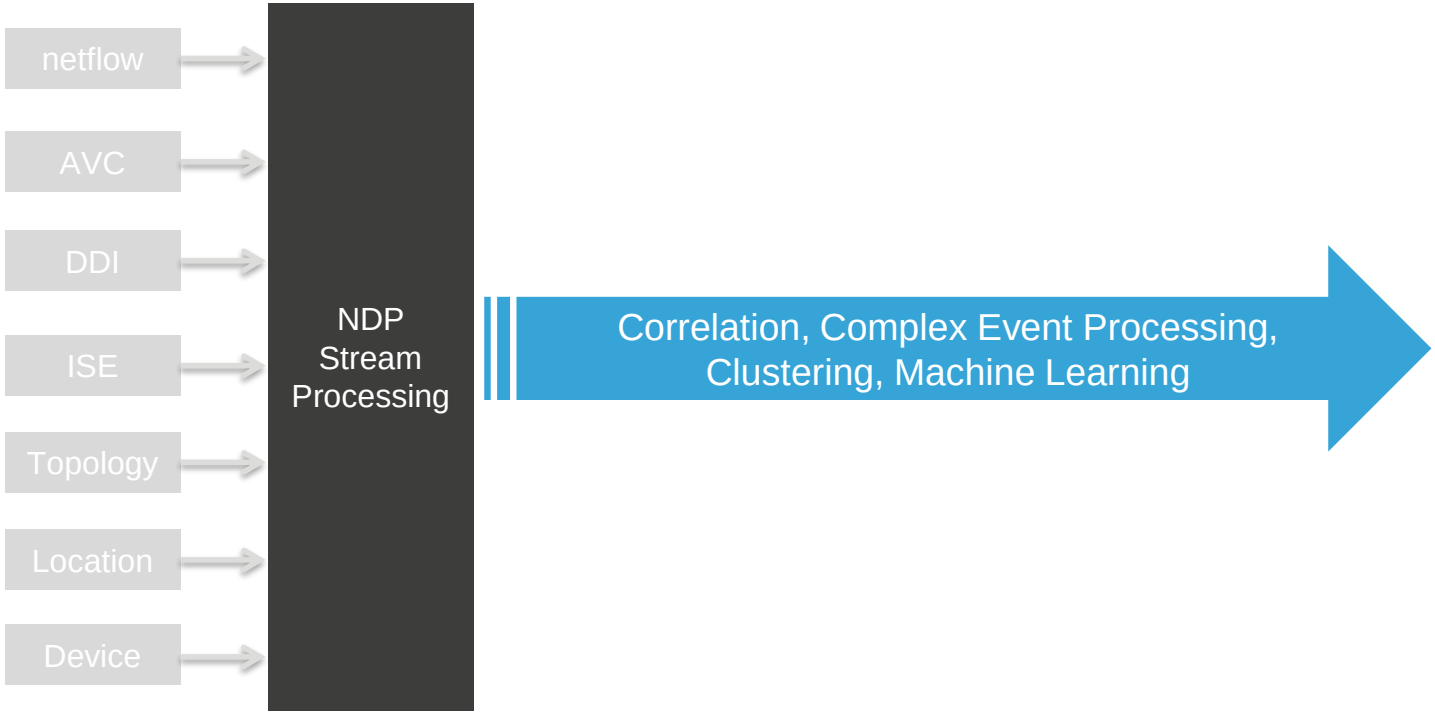
2. Insights to drive proactive operations:
   Deep insights generated through machine learning and correlation

3. Predict performance:
   Sensor-based insights predict how the network will perform: get ahead of the problem

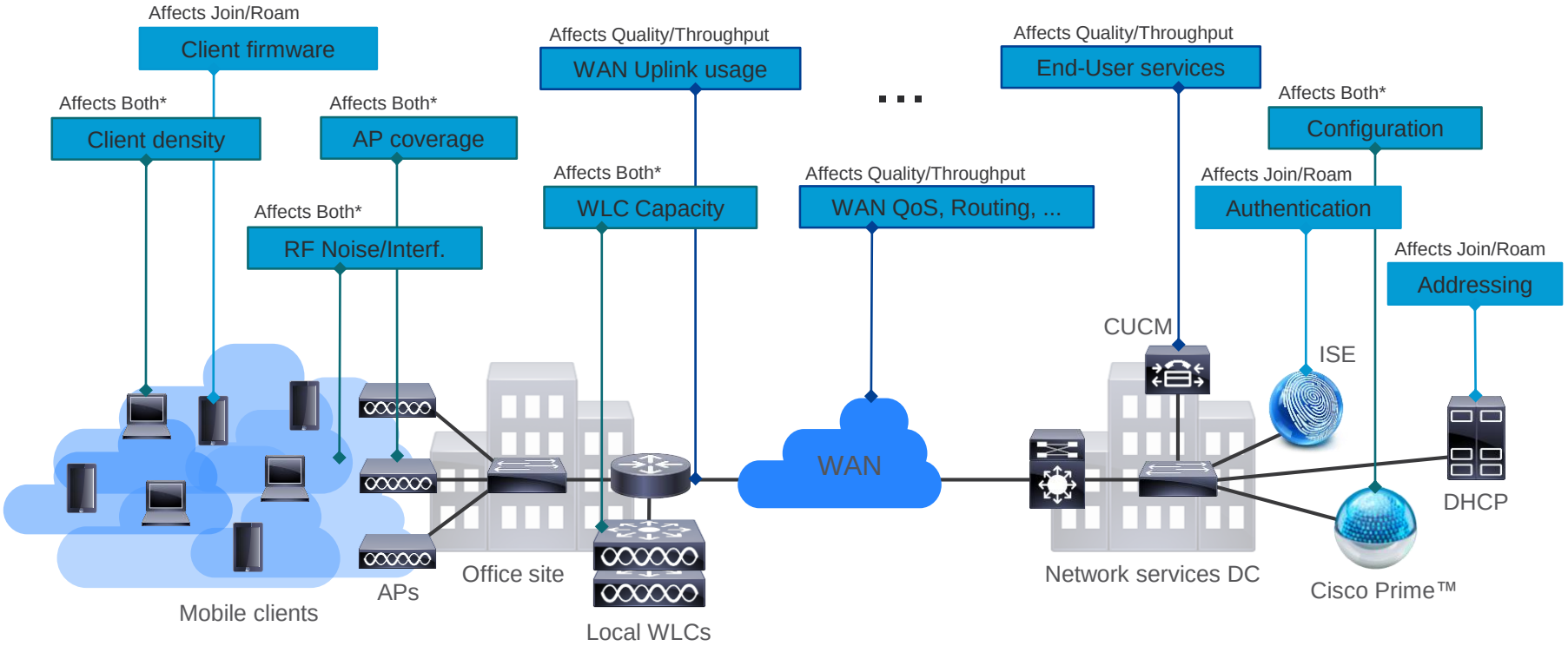
4. Streaming telemetry:
   Insights derived from high-fidelity data on the order of seconds vs. traditional data source on the order of minutes

5. Closed-loop automation:
   Integration with controller

NDP – Data Correlation and Analysis

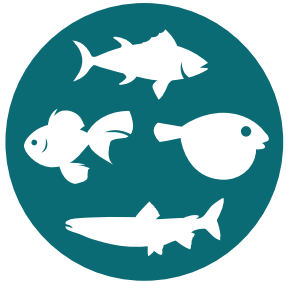


Network quality is a complex, end-to-end problem



* Both = Join/roam and quality/throughput

Generating Value in the Data Economy



Different entities generate data relevant to their operation.

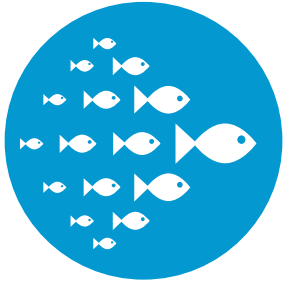
AP / Switch / Router / End Point

Variety

How fast do we need access to the data and which data?

Thresholds/Pull/Push

Velocity



Proactive Correlation & Deep Learning needs larger time windows

Netflow/SNMP/Syslog/Stream Telemetry

Volume

Which data points to pick to get the most accurate analytics?

Topology/Location/Device Type/Timing

Veracity

Analytics: Korrelation von Context-Informationen

Netflow

AVC

DDI

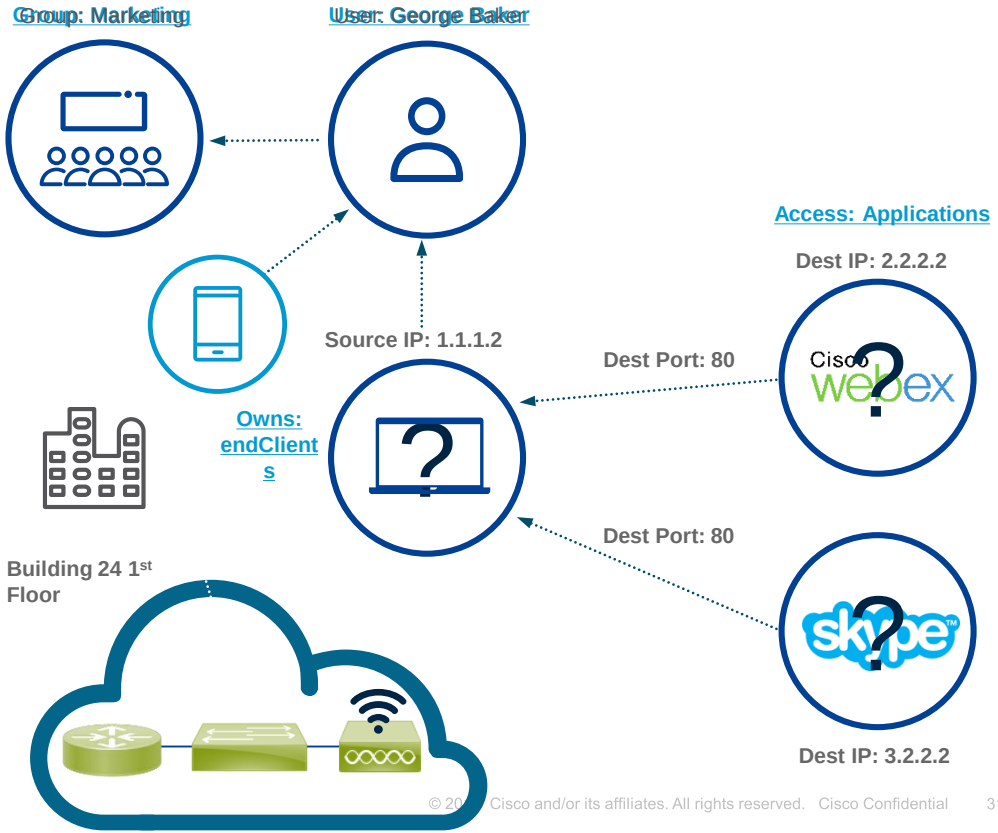
ISE

Topology

Location

Device

DNA-C Stream Processing




CISCO
TOMORROW starts here.