Integracon Technologies

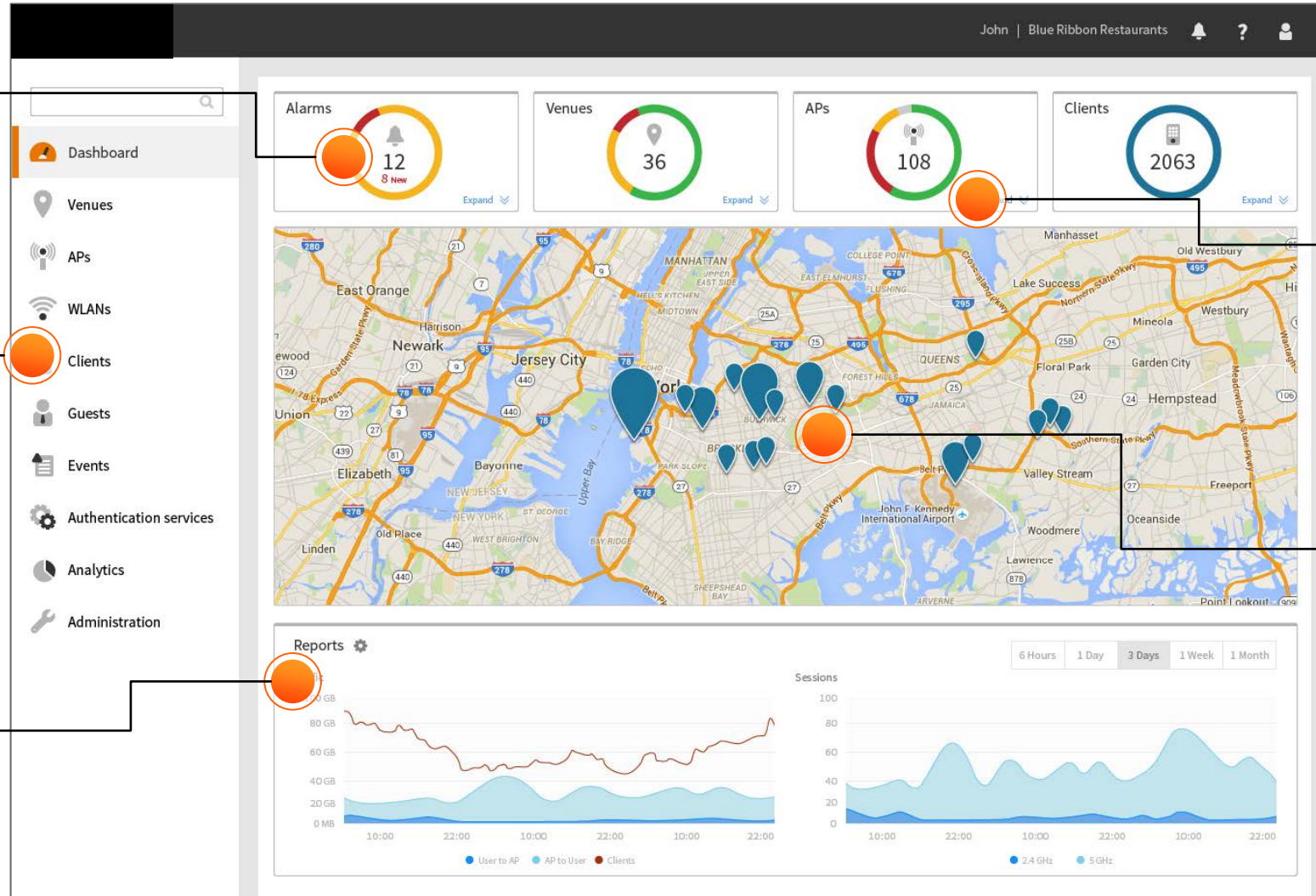# Why Integracon Cloud Wi-Fi Makes Sense!

The First Intent-driven User Interface for WLAN Management

A smart dashboard answers the critical question: how is the network doing?

An intent-driven UI makes for intuitive workflows—equally easy on day1 or 100.

Customizable reports allow you to focus in on key metrics that drive your business.

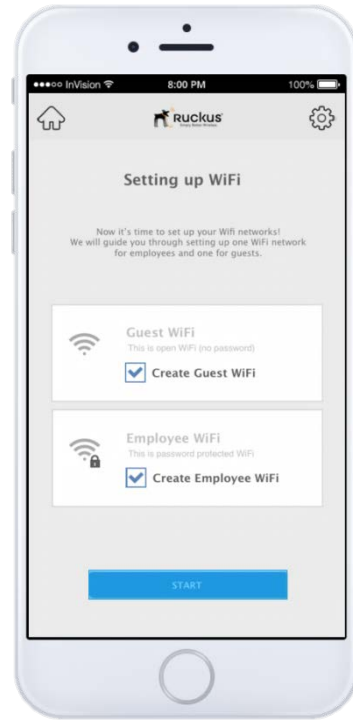View AP status at a glance, navigate to the AP page for detailed information.

Maps show venue health and serve as a launch point to check APs, clients, usage, and more for a venue.
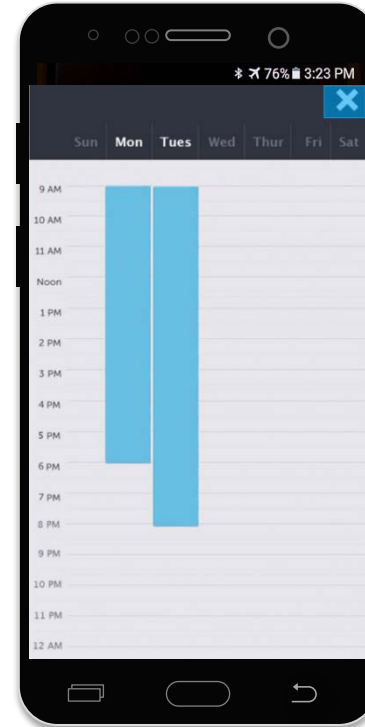
Complemented by Equally Intuitive Mobile App…
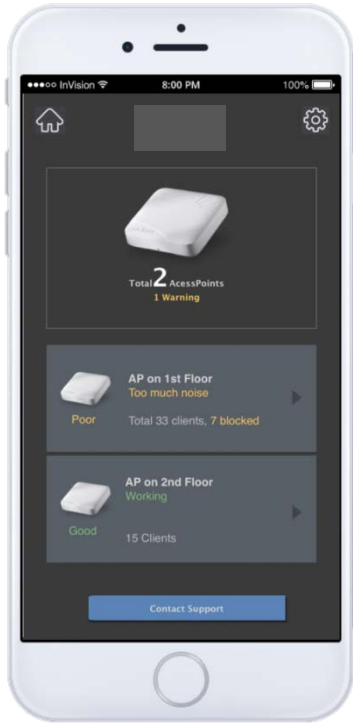
iOS -or- Android

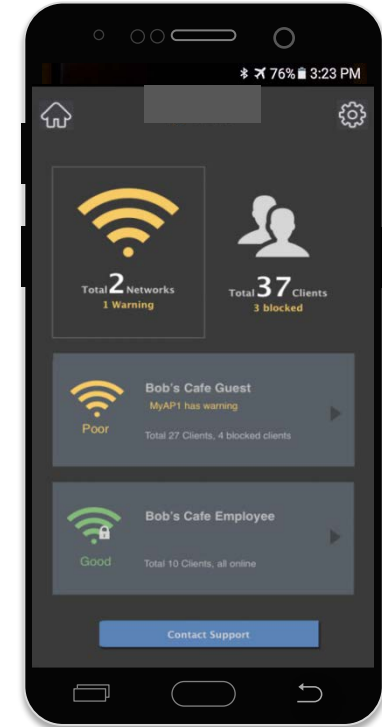## Provision
Easily add APs by scanning the barcode on the back

Setup
Create, modify, and monitor WLANs and their settings

Control
Control your system with scheduled WLANs per venue

Monitor
Monitor connections, status, and network performance

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…And Comprehensive Guest Access Tools

- Rich guest / visitor connectivity, free with cloud subscription

- Present your brand and interact with visitors

- Simple workflows, easy setup

- "Scan business card" guest feature

- Control your guest connections
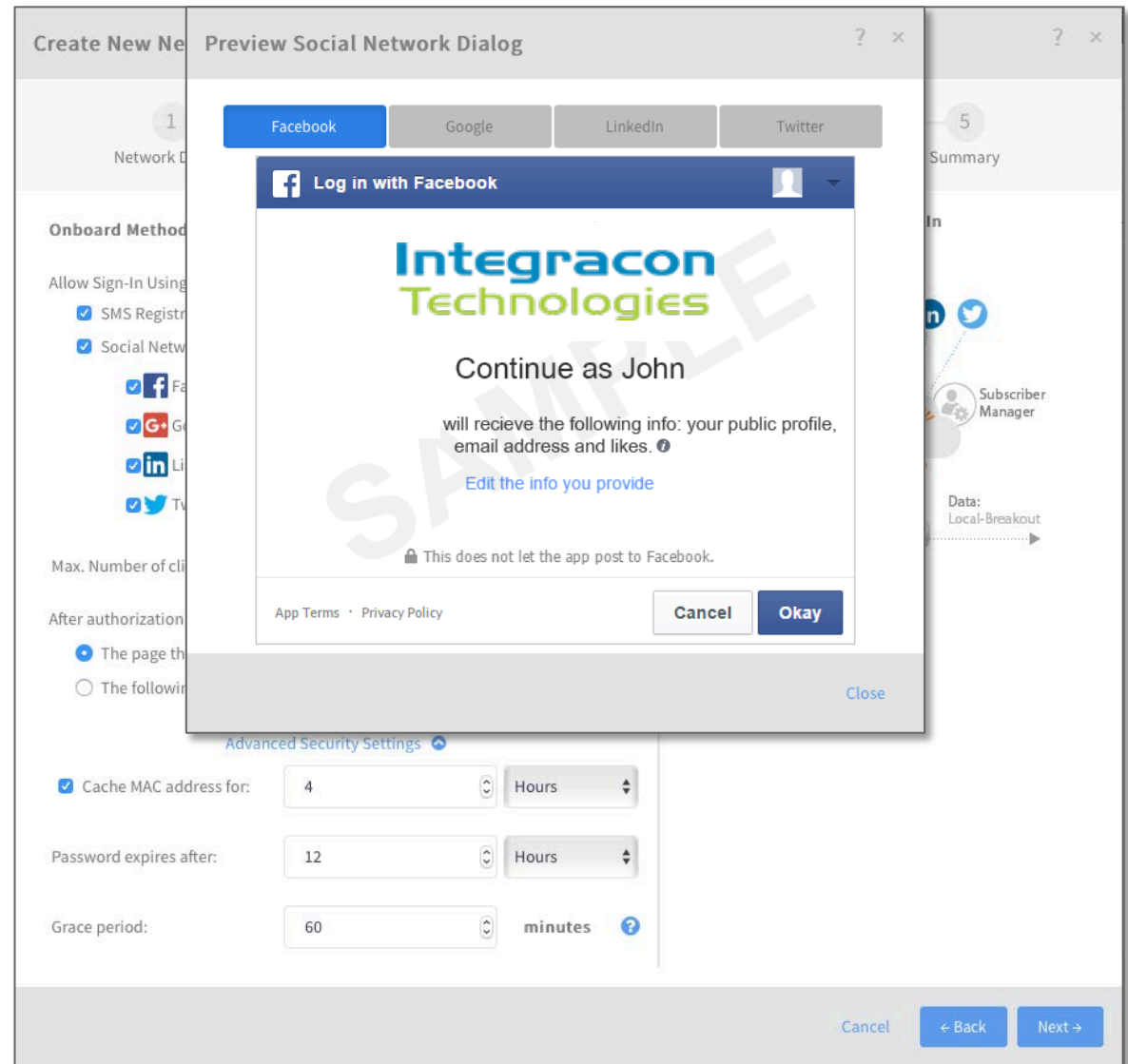
Move Faster. Do More. Get Kudos.

Reduce the complexity of managing a network while ensuring a Wi-Fi experience that users love.

Complaints about the Wi-Fi

Time-consuming WLAN administration

Multi-site scaling complexity

**Integracon**
Technologies

Integracon *Cloud Wi-Fi* is WLAN Management-as-a-Service that enables organizations with limited IT resources to set-up, manage, monitor and scale a high-performance multi-site WLAN without compromising on Wi-Fi performance.

An Intent-driven User Interface Makes WLAN Management Simple

A smart dashboard answers the critical question: how is the network doing?

An intent-driven UI makes for intuitive workflows—equally easy on day1 or 100.

Customizable reports allow you to focus in on key metrics that drive your business.
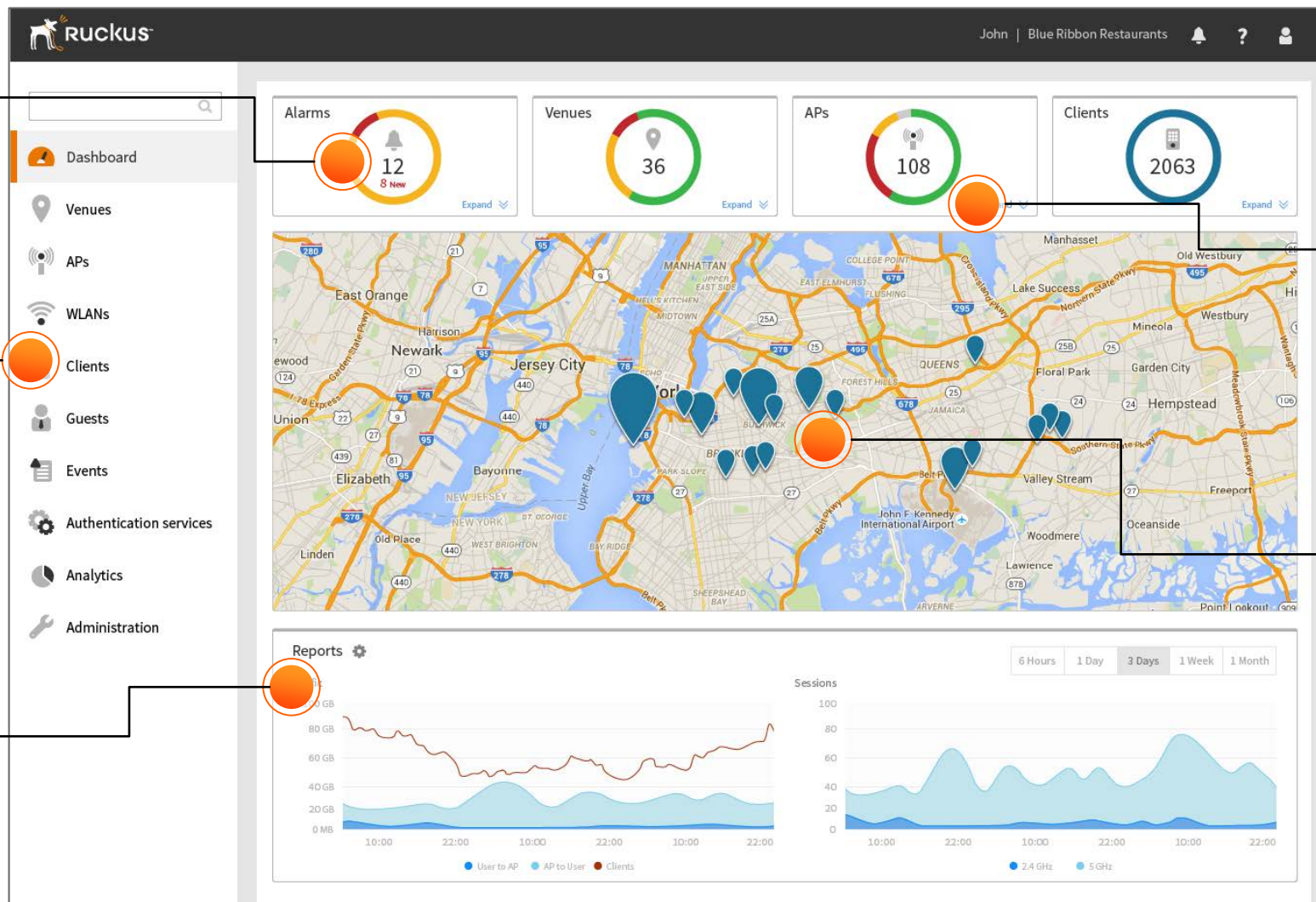
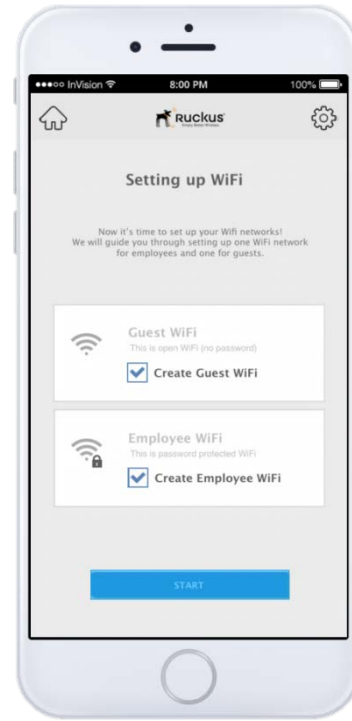View AP status at a glance, navigate to the AP page for detailed information.

Maps show venue health and serve as a launch point to check APs, clients, usage, and more for a venue.

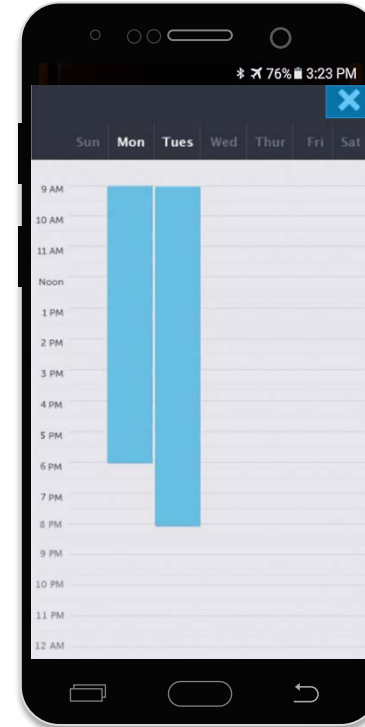# An Equally Intuitive Mobile App Makes It Even Simpler
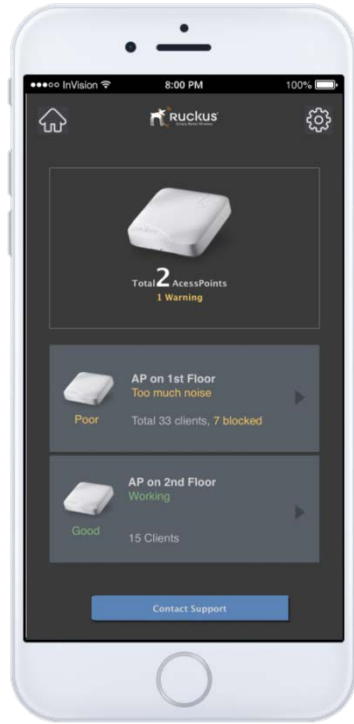
iOS -or- Android

Provision
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Setup
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Integracon **Cloud Wi-Fi** Is…
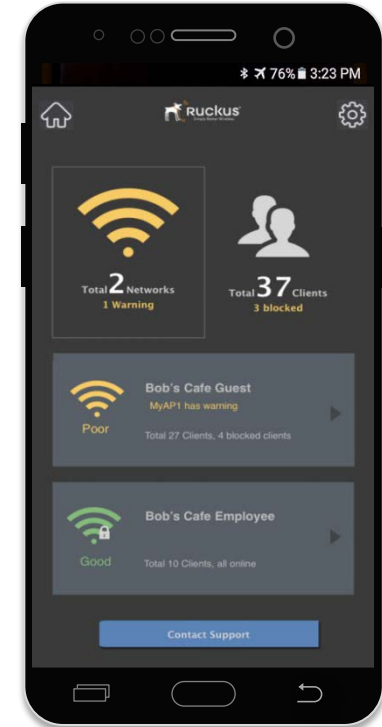
Subscription

All-inclusive:

– Management license

– Reporting and analytics

– 24x7 chat / phone / web support

WLAN Management-as-a-Service

SMB	Medium Biz	Corporate	Enterprise	Outdoor

Top Cloud Wi-Fi Benefits

User Experience: Provide and enjoy consistently great Wi-Fi, regardless of environment

Simplicity: Dramatically reduce WLAN deployment and management complexity

Speed: Deploy and expand WLANs quickly, achieve faster time-to-value

Scale: Cloud-scale platform means near-unlimited scalability, with a single UI

Freedom: Use a mobile app to monitor, manage and troubleshoot from anywhere

Investment Protection: Reuse APs with any other Integracon Wireless controller architecture

Integracon Technologies

Top 3 Challenges We Hear From IT

Complaints about the Wi-Fi

Time-consuming WLAN administration

Multi-site scaling complexity

Integracon Technologies

Because competence in multiple technological building blocks is required to address them.

As a Consequence, We See This in the Market

Scalable architecture	*but not*	Great Wi-Fi
Reusable APs	*but not*	Simple interface
Simple interface	*but not*	Scalable architecture

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In the Ideal World…

1 Perfect Wi-Fi, all the time

2 Limited or no IT staff, no problem

3 Consistent experience, regardless of AP or venue count

4 Change your architecture, keep your APs

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Technologies

…But This Is Hard To Do
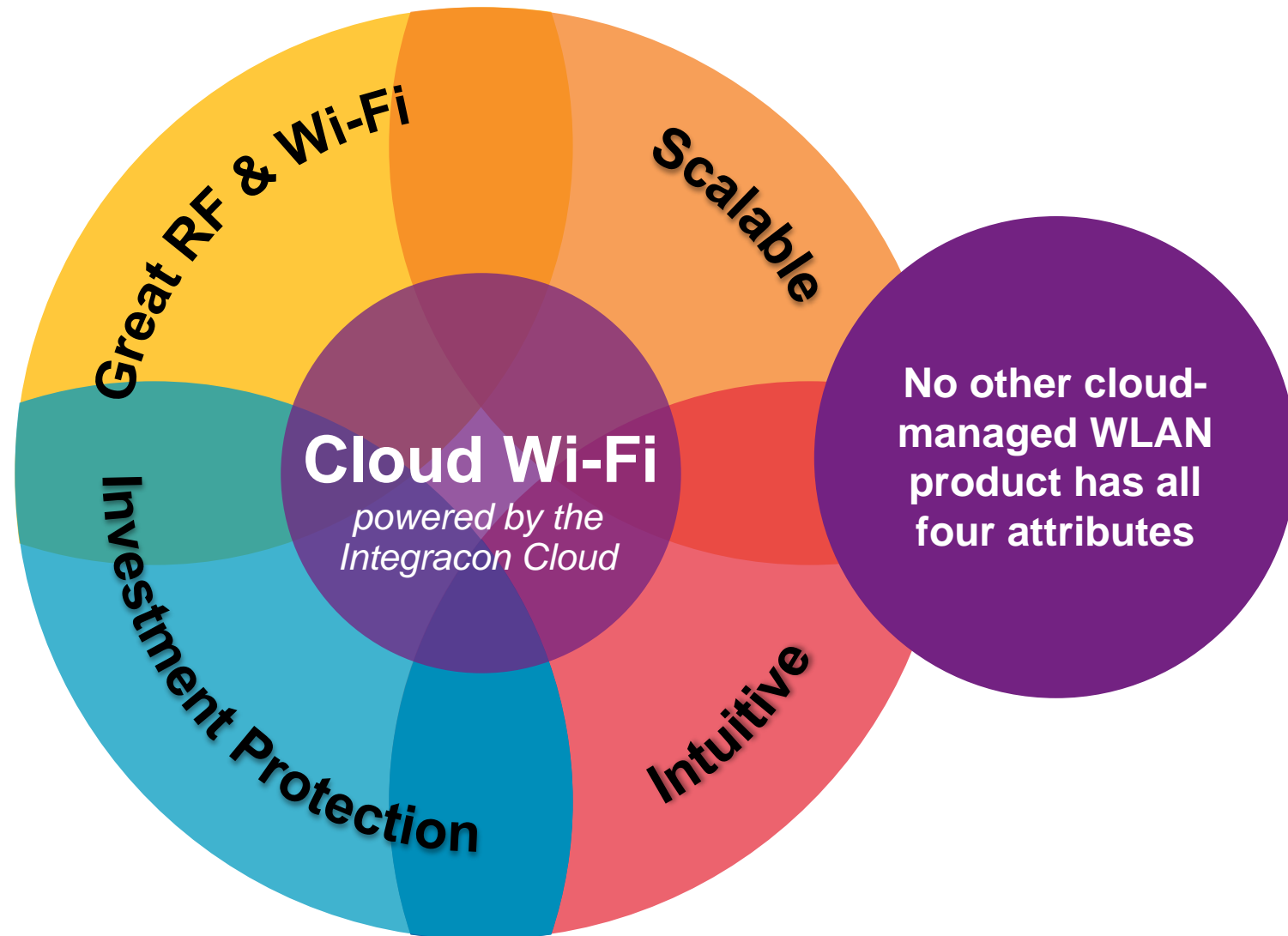
RF is unpredictable and non-deterministic.

WLANs are complex. Hiding complexity is an art.

Cloud-scale requires a clean slate.

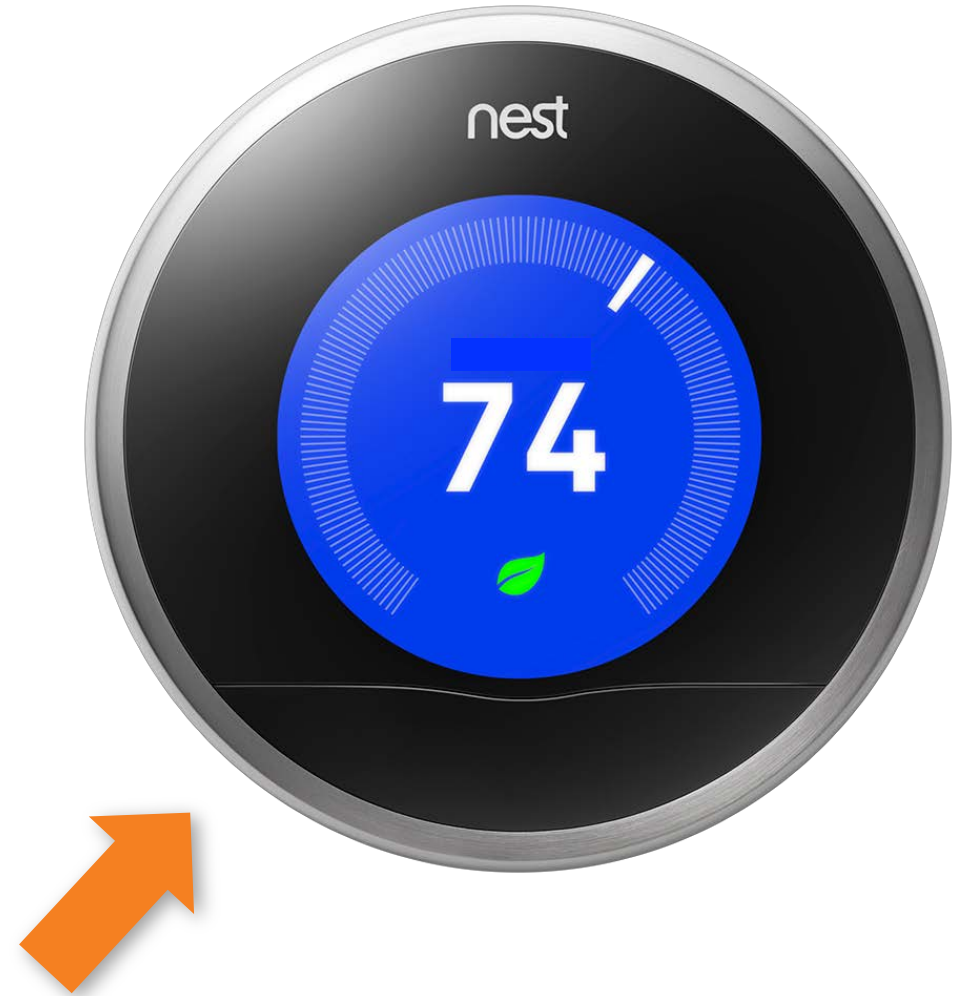Reusability requires: (a) more than one architecture; (b) an adaptable AP.

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Great RF & Wi-Fi

Scalable

Investment Protection

Intuitive

Cloud Wi-Fi
powered by the Integracon Cloud

No other cloud-managed WLAN product has all four attributes

Integracon Technologies

Consistently high performance, regardless of circumstances…

HIGH USER / DEVICE DENSITY

HIGH LOSS

HIGH INTERFERENCE

What We Mean by *Intuitive*

The Integracon **Cloud Wi-Fi** Offer

Subscription

All-inclusive:

– Management license

– Reporting and analytics

– 24x7 chat / phone / web support

**WLAN
Management-as-a-Service**

SMB	Medium Biz	Corporate	Enterprise	Outdoor

*GA end Aug 2016

Top Cloud Wi-Fi Benefits

User Experience: Provide and enjoy consistently great Wi-Fi, regardless of environment

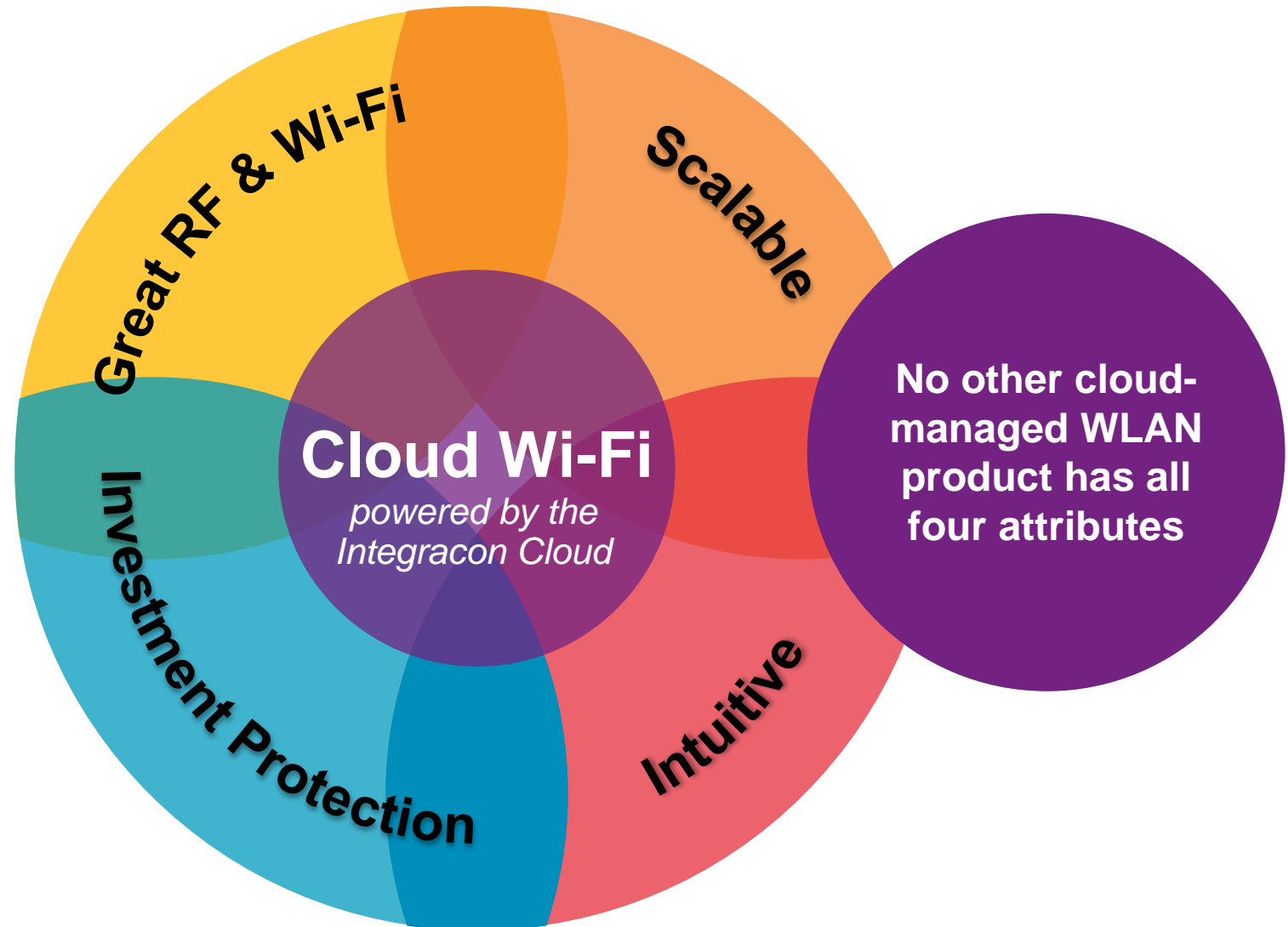**Simplicity:** Dramatically reduce WLAN deployment and management complexity

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Cloud Wi-Fi Value Proposition

Great RF & Wi-Fi

Scalable

Investment Protection

Intuitive

Cloud Wi-Fi
powered by the Integracon Cloud

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Integracon
Technologies

Top Cloud Wi-Fi Benefits

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Integracon Technologies

Key Features and Benefits

Industry-Best RF
Wi-Fi that delivers, for more clients, in tougher conditions, with higher user satisfaction

Intent-Driven UI
Overworked IT can setup and manage a multi-site WLAN with confidence

Dashboard
Check on device status and know your network's health in just a glance

Guest Services
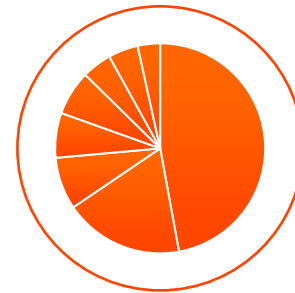Simplify and personalize the guest network experience with built-in tools

Reporting & Analytics
Compare trends and inform your business decisions with custom reports
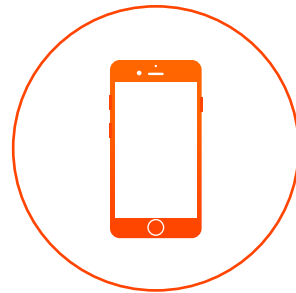
Mobile App
Workflows for quick setup and easy operation including alerts, config, and monitoring

App Visibility
Know the key applications consuming bandwidth; take action as needed

WLAN Services
Use an array of easy-to-set-up WLAN types to meet your service requirements

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RF, Optimized for 802.11ac

- Built to perform in the harshest of conditions…
  - High loss
  - High interference
  - High client density

- BeamFlex+ and MU-MIMO
  - Dynamic antenna adaptation and transmit beamforming (at the same time)
  - Proven capacity gains > 2.5x with MU-MIMO
  - Polarization diversity enhances mobile device uploads
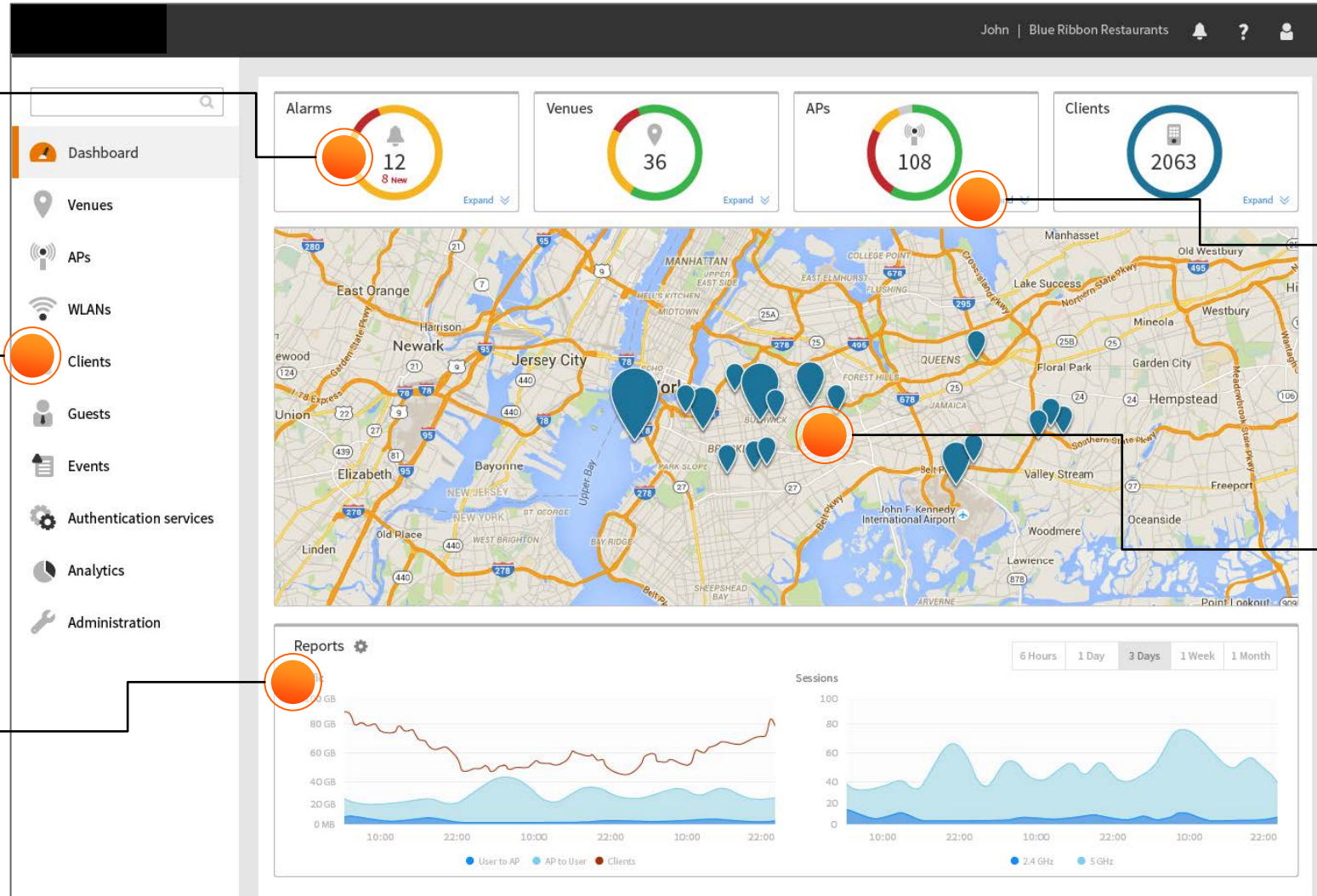 - Best airtime efficiency in the industry

HIGH INTERFERENCE

HIGH LOSS

HIGH DEVICE DENSITY

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Intent-driven UI: Dashboard Introduction

A smart dashboard answers the critical question: how is the network doing?

An intent-driven UI makes for intuitive workflows—equally easy on day1 or 100.

Customizable reports allow you to focus in on key metrics that drive your business.

John | Blue Ribbon Restaurants

Alarms	Venues	APs	Clients
12	36	108	2063
8 New			
Expand	Expand		Expand

Dashboard

Venues

APs

WLANs

Clients

Guests

Events

Authentication services

Analytics

Administration

Reports

| 6 Hours | 1 Day | 3 Days | 1 Week | 1 Month |

Sessions

View AP status at a glance, navigate to the AP page for detailed information.

Maps show venue health and serve as a launch point to check APs, clients, usage, and more for a venue.

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A New Approach: The Venue

– A venue is an organizational element for the system

– Venues combine physical elements (APs, buildings, floors, areas)

– Check per-venue AP status on the dashboard, drill-down for more detail

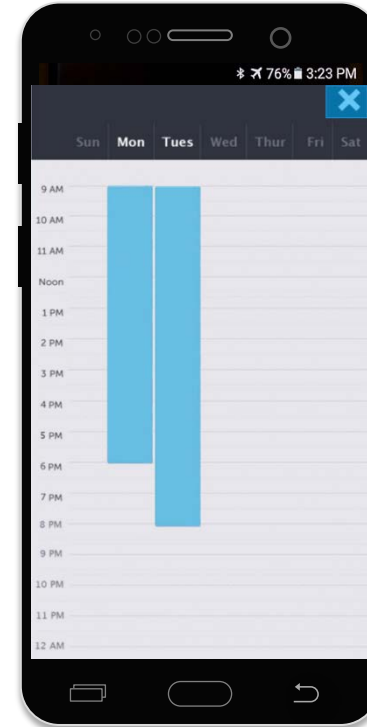# The Mobile App: Made for Millennials
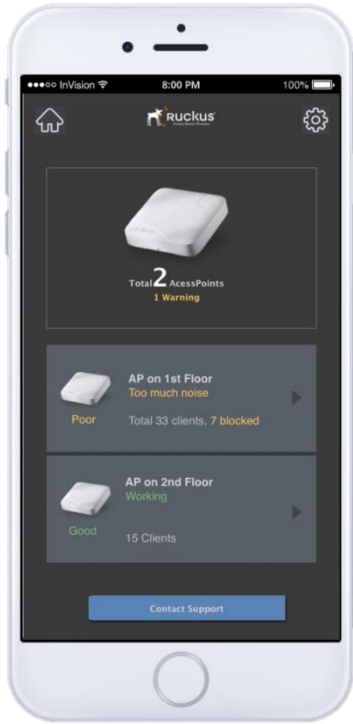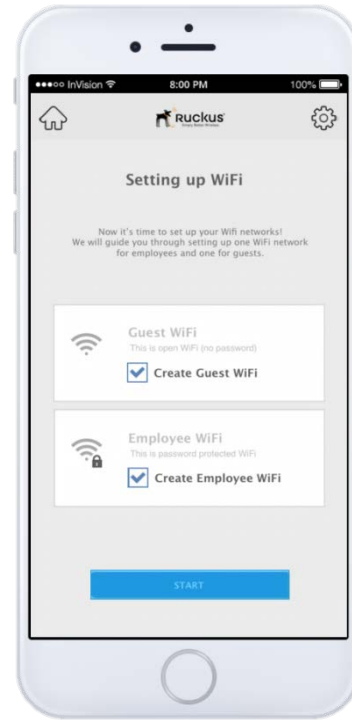
iOS
-or-
Android

Provision
Easily add APs by scanning the barcode on the back

Setup
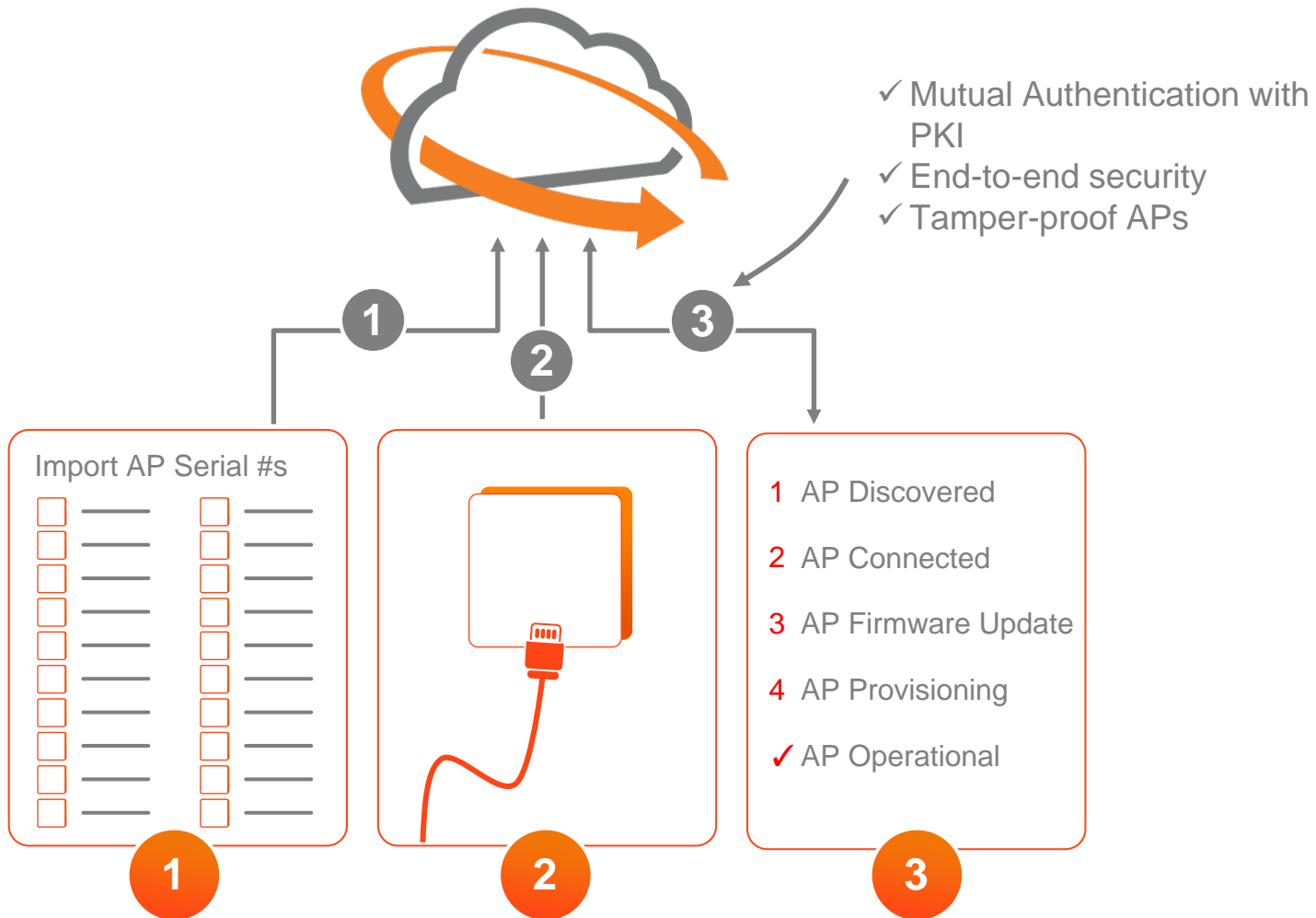Create, modify, and monitor WLANs and their settings

Control
Control your system with scheduled WLANs per venue

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Monitor connections, status, and network performance

Integracon Technologies
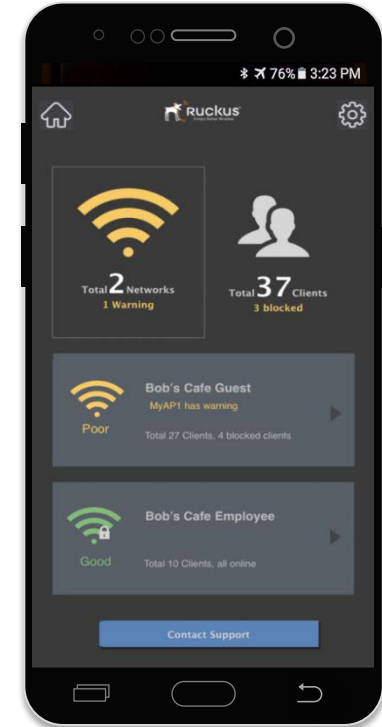
Zero-touch AP Provisioning

✓ Mutual Authentication with PKI
✓ End-to-end security
✓ Tamper-proof APs

1 — Import AP Serial #s

3
1 AP Discovered
2 AP Connected
3 AP Firmware Update
4 AP Provisioning
✓ AP Operational

- Plug-and-play setup and installation
- Three quick steps to a functional network
- Power-up and have AP serving clients in under 10 minutes
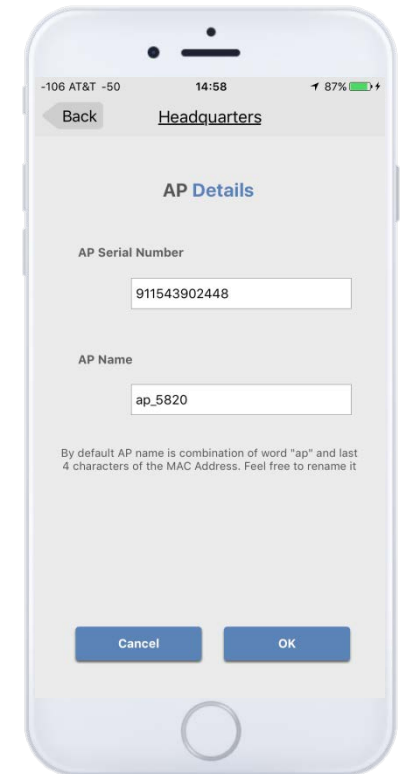- Automatic cloud discovery, connection, firmware update and provisioning

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Zero-touch: Scan and Add an AP

Select the desired venue

Every AP ships with a serial number on the back

Scan the AP to auto-add into your venue

Validate the serial and name the AP

Integracon Technologies

Experience Guest Access Nirvana…

– Rich guest / visitor connectivity, free with cloud subscription
  - Social network sign-in
  - SMS Registration
  - Sponsored guest passes

– Present your brand and interact with visitors

– Simple workflows, easy setup

– "Scan business card" guest feature

– Control your guest connections
  - Guest pass expiration
  - Number of devices
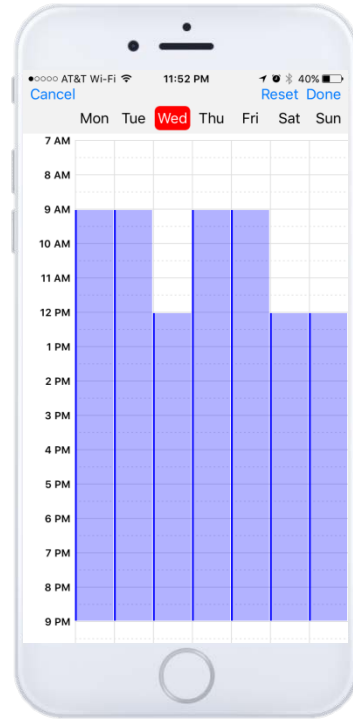 - Guest pass distribution by SMS, email, print
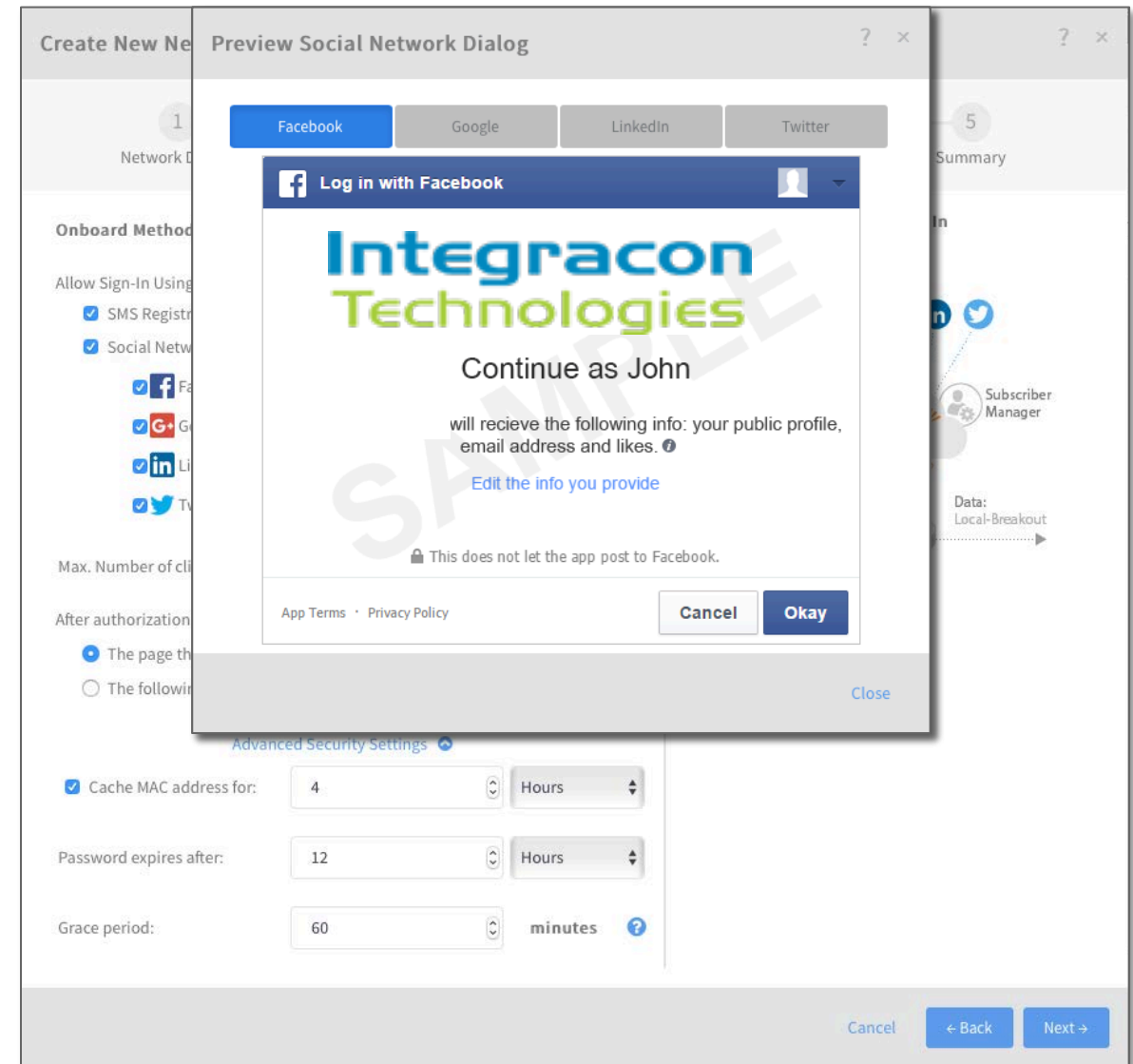
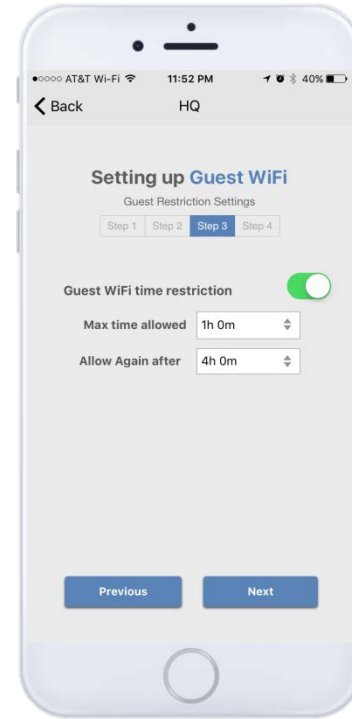# …With a Mobile App That Speeds and Simplifies
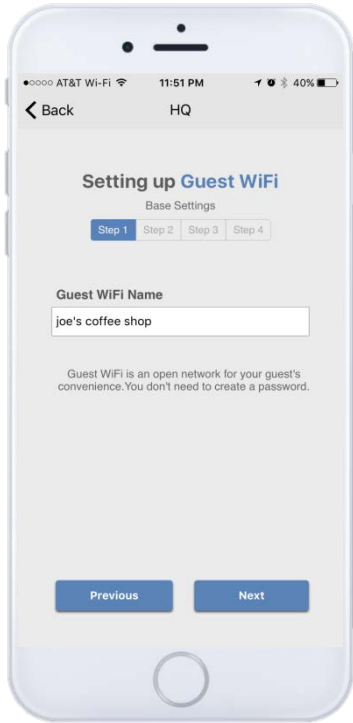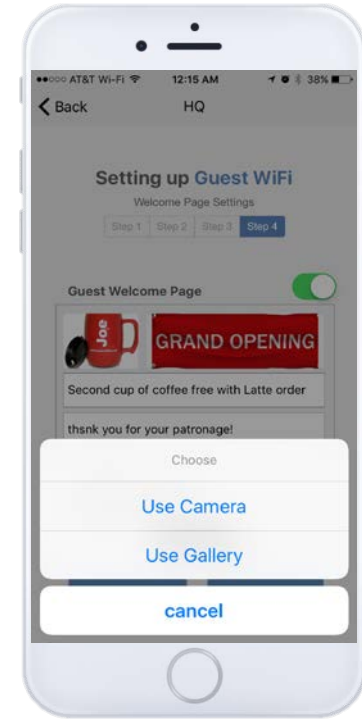

Name
Give your venue a name

Schedule
Control WLAN availability

Set Usage
Control session durations

Create Portal
Customize your portal

Customize Your Built-In Portal

- Intent-driven UI for guest portal
- Easily customize your own…
  - Logos
  - Greetings
  - Advertisements
  - Terms and Conditions
- Portal preview (always visible)
  - See what your customers will see
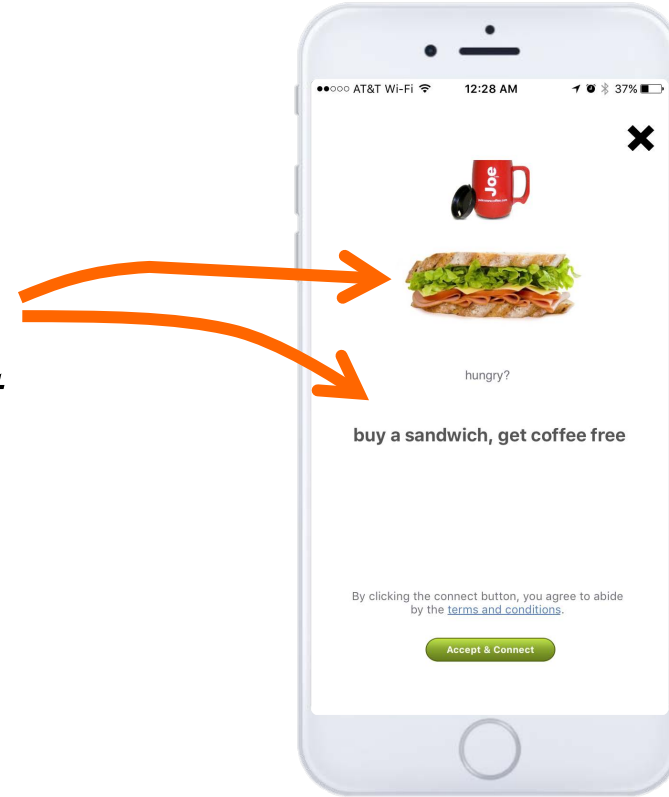 - Customize and validate the changes simultaneously

Insert Offers, Anytime

Be your own marketing manager with just a few "taps" on your phone
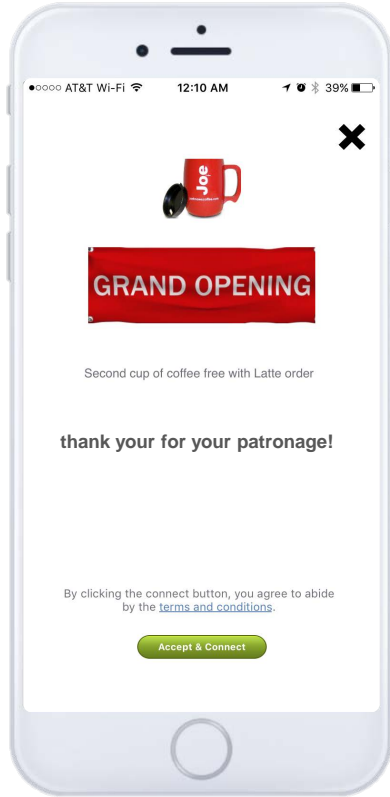
Monday morning
Message: Welcome and thank you

Lunch time
Change banner image and promote sandwich

Big Data Analytics? Check.

Choose from a long (and growing) list of data and reports to analyze
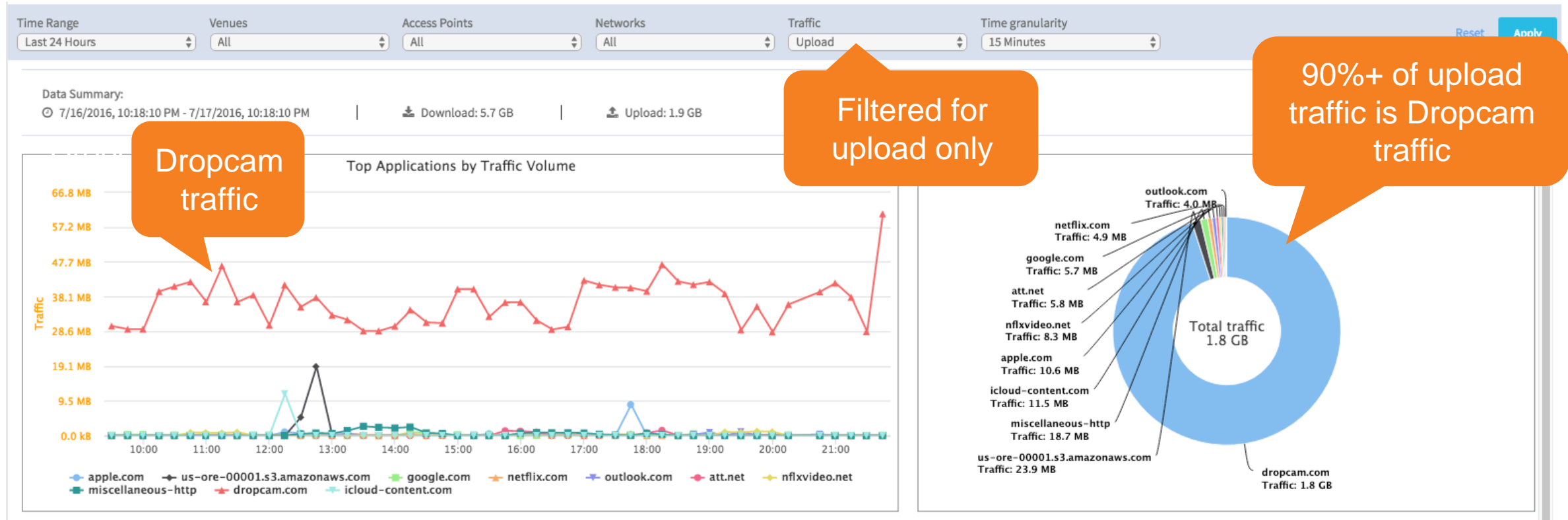
Pick the right filters (predefined or custom time ranges, venues, APs, networks) for your use case

Run customized long-term reports and review quick stats at a glance

Hover for more information; select or de-select chart data interactively

School's out for the summer
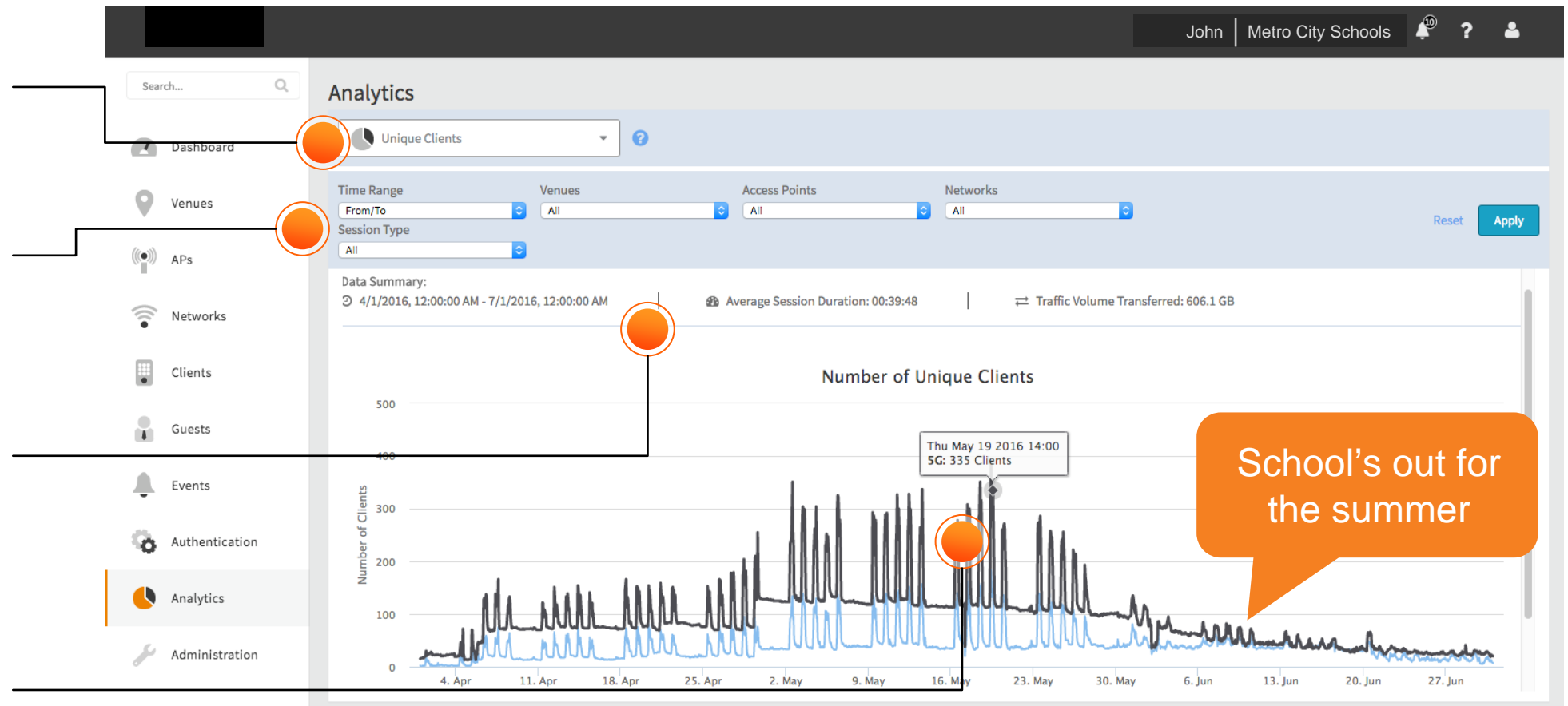
Application Visibility: What's Causing High Upload Traffic?

- Sophisticated DPI algorithms accurately identify 2000+ application types
- Use smart filters to quickly detect the apps consuming most traffic
- Run reports and trending using 6 months of historical data

WLAN Features

Security

802.1X/EAP, VLANs, client isolation, guest access control, RADIUS failover

Flexibility

Time schedules, maximum client count, assignment per venue

Optimization

Rate limiting, band balancing, airtime fairness, fast roaming (11k/r), management rate control, minimum data rates

Authentication

Open, PSK, guest pass, social, SMS registration, onboard, 802.1X, Cloudpath
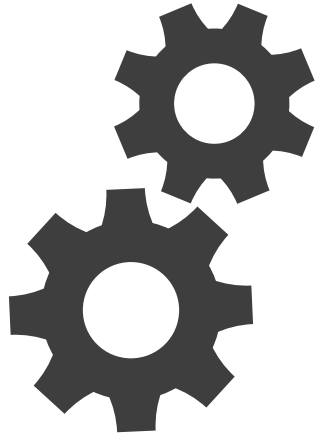
Portals

Customize logos, advertisements, messaging text, terms and conditions

…More

Mesh (simultaneous client service and backhaul), cache timers, timeout values

Connectivity Services: All the Options

Private (encrypted)

PSK – simple, easy passphrase security

802.1X – enterprise-grade security with EAP authentication and AES encryption

Cloudpath – automated onboarding and 802.1X with certificates (i.e. the holy grail)

Public (unencrypted)

Open – come on in…connectivity as easy as it gets

Click-through – require users to see and agree to terms and conditions

Passcode – require users to obtain a passcode

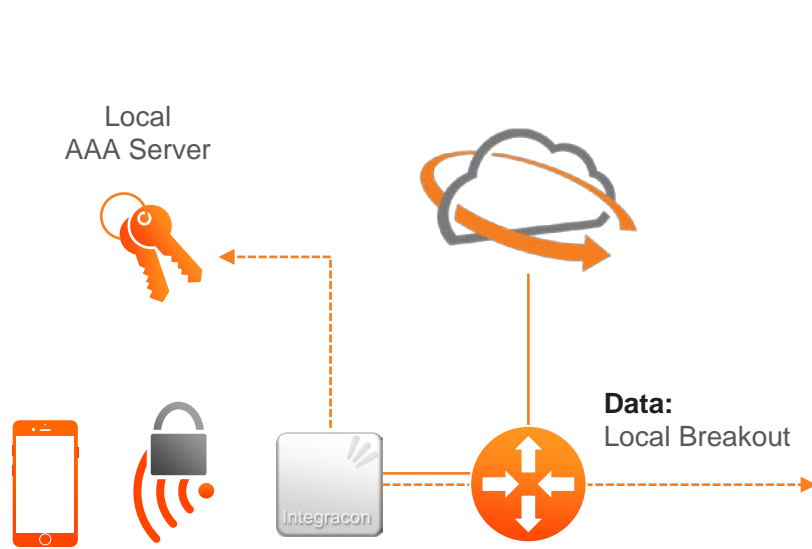SMS / Email – validate the user during connectivity and collect some basic ID

Social – use social networks to authenticate a user and identify them later
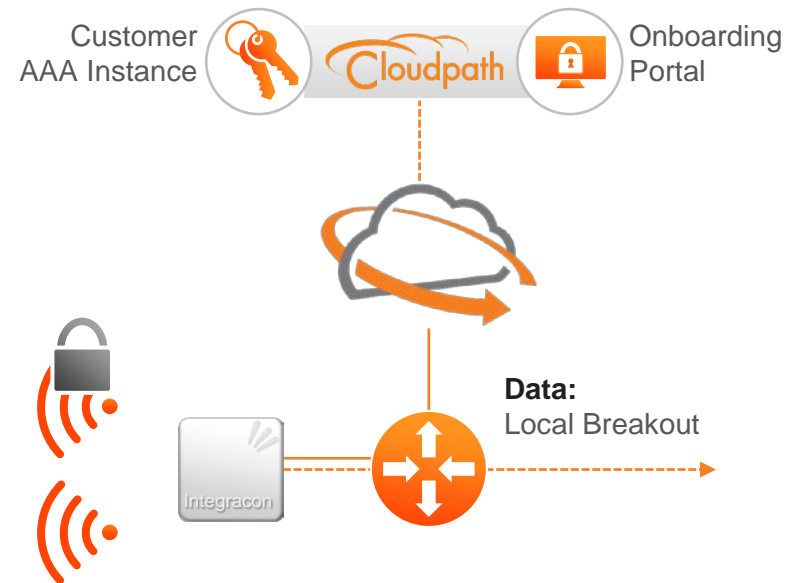
Guest (sponsored)

Open – control access for trusted guests in an enterprise environment

**Integracon Technologies**

802.1X

- Standards-based 802.1X using local RADIUS server and user database
- Cloud is not in authentication or session control path
- Optimal for enterprise security

Cloudpath

- Hosted Cloudpath onboarding, cert services, and tenant AAA instance
- Automated onboarding
- Ideal for customers that don't want local authentication services or want automated onboarding
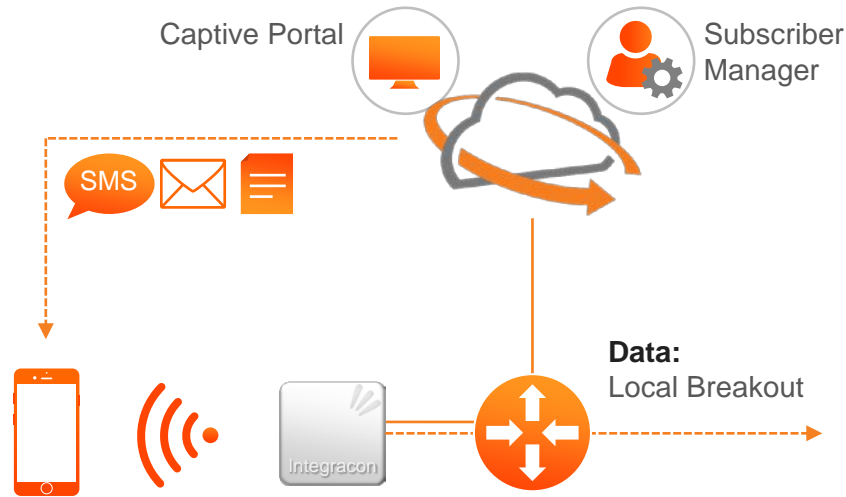
Guest

- Hosted captive portal and sponsored guest services
- Multiple guest pass distribution mechanisms
- Great way to control guest connectivity alongside your secure corporate network
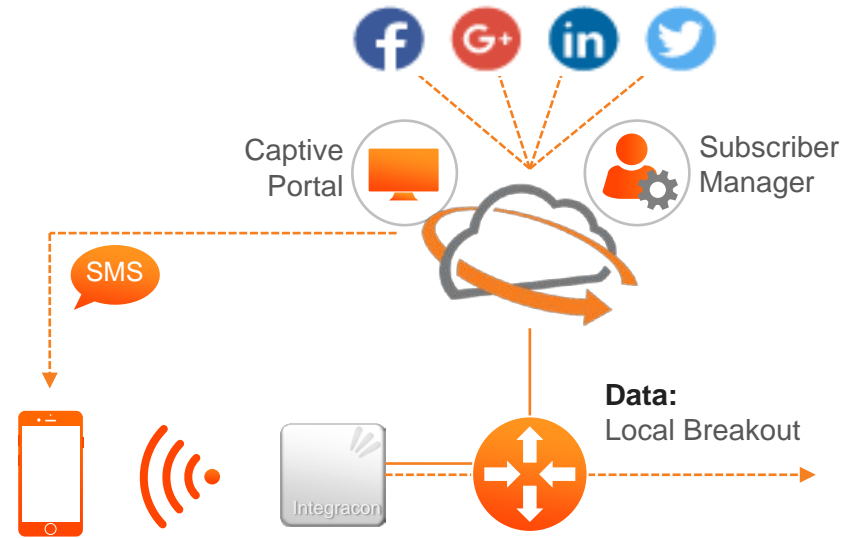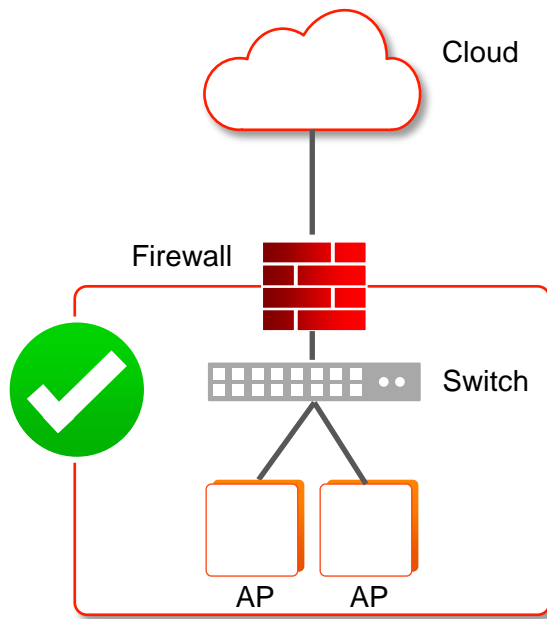
Self Sign-In

- Hosted captive portal and subscriber management for self-service registrations
- Integration with key social platforms and SMS
- Built for public access uses; allows venue owner to learn about users

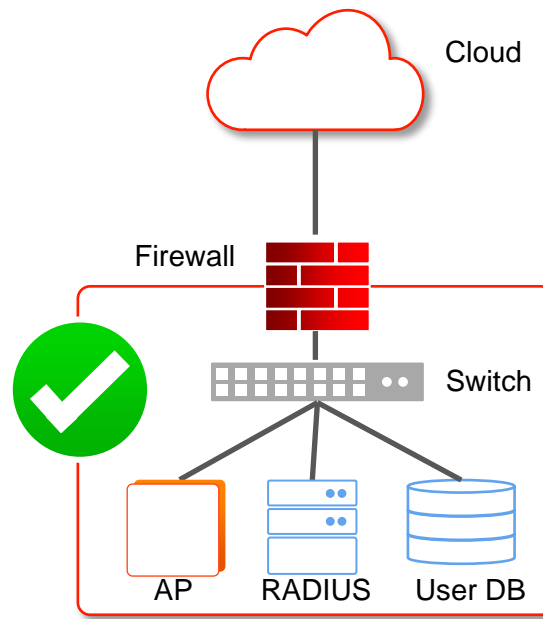# WLAN Functionality and Cloud

PSK

- AP handles PSKs locally
- All key encryption done by AP
- Fully survivable without cloud

802.1X

- AP performs 802.1X exchange
- All key encryption done by AP
- Fully survivable without cloud

Guest

- Cloud serves captive portal
- Cloud OAuths with social login
- Cloud must be reachable
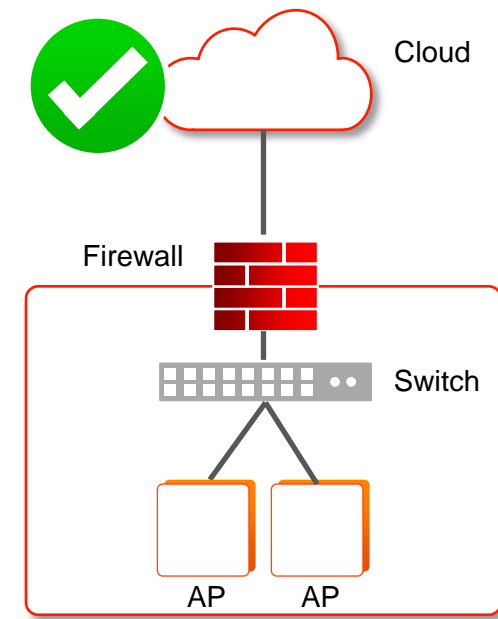
Investment Protection…In Case Things Change

– Sometimes, requirements change

– Your APs aren't bricks when your Cloud Wi-Fi subscription ends

– We don't believe that one size fits everyone forever

– We have options, so do you!

Unleashed

ZoneDirector

SZ / SCG

Virtual SZ

Robust Security from Ground to Cloud

- Infrastructure and Management
  - ISO 27001 and SSAE-16 SOC1, SOC2, and SOC3
  - Fully encrypted web interface and mobile app
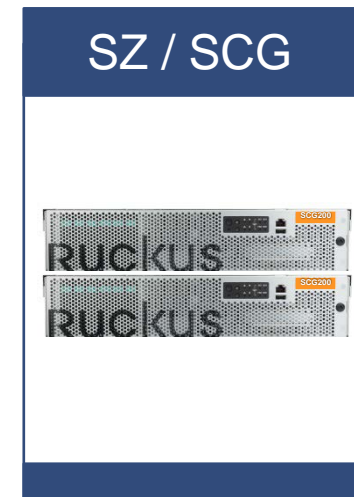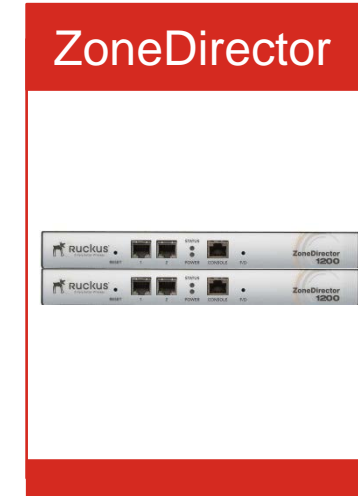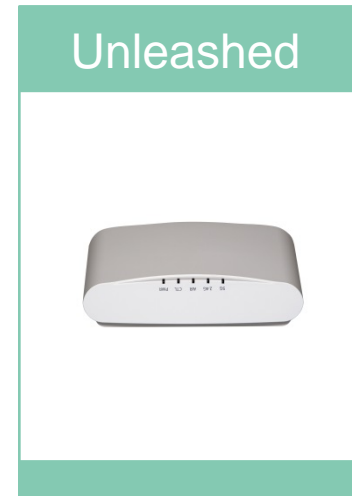 - Stringent physical, data access, data disposal security measures
  - Touch ID integration for mobile access
  - Guest pass portal keeps receptionist isolated from cloud management
- AP Control
  - All control traffic is encrypted (SSH)
  - Mutual authentication via certificates validates the AP to the cloud and vice versa
- User Connectivity
  - User data stays local, never traverses the cloud
  - 802.1X networks with local RADIUS
  - Cloudpath integration with PKI and EAP-TLS
  - Disable WLANs on a schedule

Integracon

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Technologies
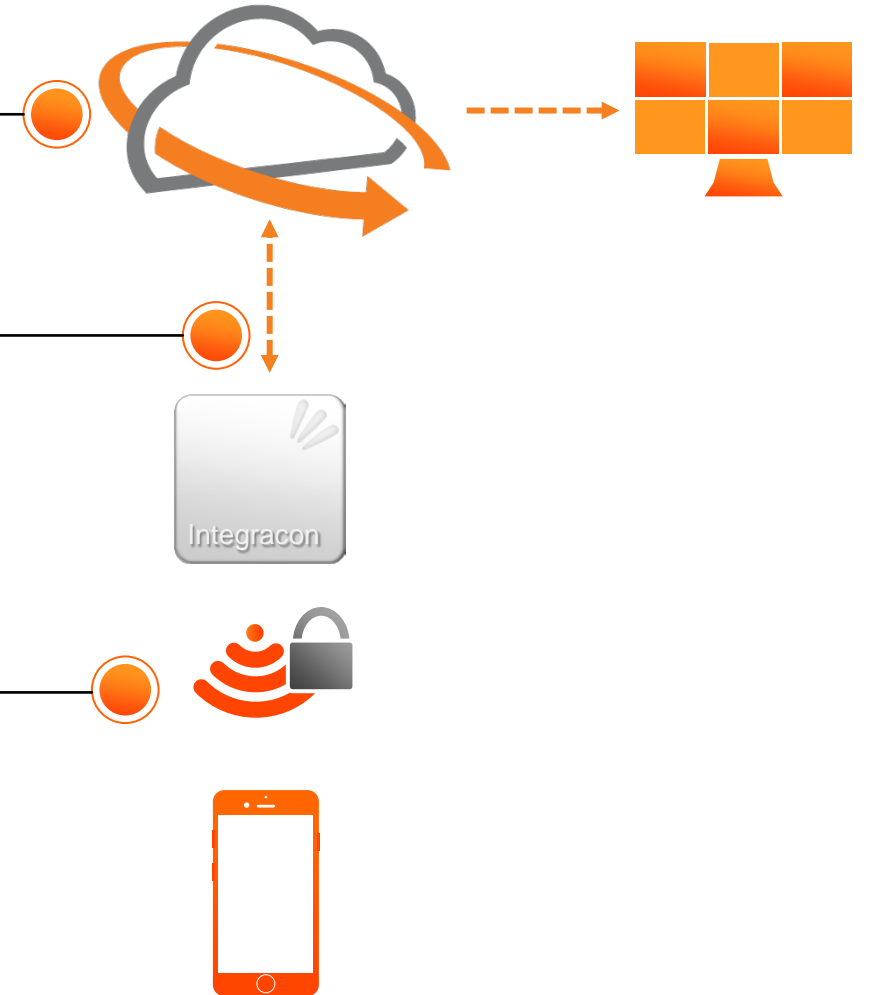
Integracon Cloud Architecture

Holistic single-UI view per persona
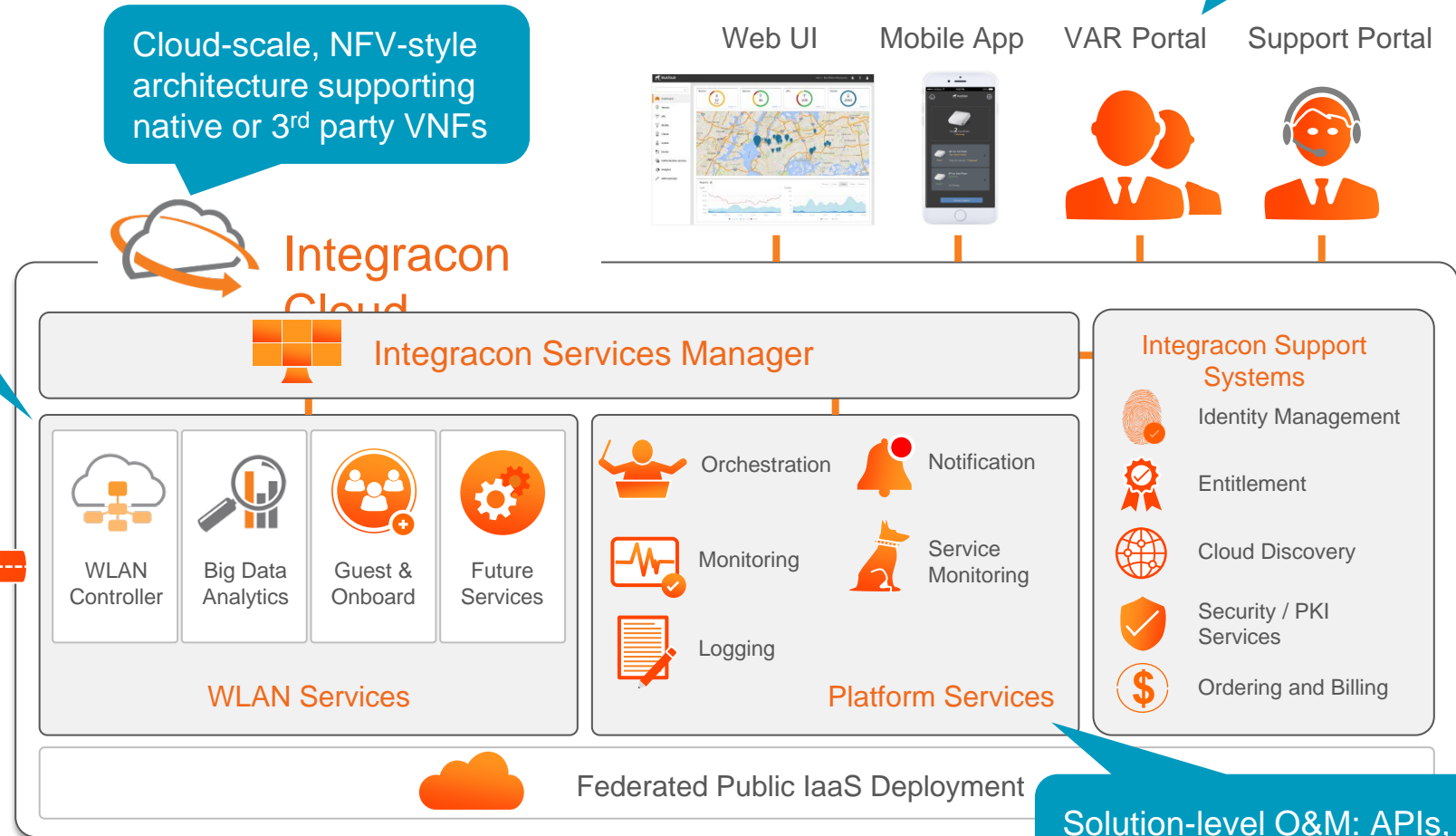
Cloud-scale, NFV-style architecture supporting native or 3rd party VNFs

Web UI   Mobile App   VAR Portal   Support Portal

Modular service architecture

Integracon Cloud

Integracon Services Manager

WLAN Services

- WLAN Controller
- Big Data Analytics
- Guest & Onboard
- Future Services

Platform Services

- Orchestration
- Notification
- Monitoring
- Service Monitoring
- Logging

Integracon Support Systems

- Identity Management
- Entitlement
- Cloud Discovery
- Security / PKI Services
- Ordering and Billing

Federated Public IaaS Deployment

Solution-level O&M: APIs, SW upgrades, backup

Customer Venue

AP

Management and Control

Integracon

Integracon

Local Traffic Breakout

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Optimized Workload Distribution

Handled by AP

Handled by Integracon Wifi Cloud

Management →

← **Control**

← **Data**

- Antenna and rate selection
- QoS and airtime optimization
- App and OS fingerprinting
- L2-7 traffic handling policies
- Channel and Tx power
- Mesh formation and adaptation
- Fast roaming – 11r, 11k, 11v
- Band and load balancing
- Authentication (Open, PSK, 802.1X)

- Management, configuration, provisioning
- Monitoring and troubleshooting tools
- Reporting and data analytics
- Captive portal and hotspot presentation
- Logging and events
- Identity management
- Onboarding workflows
- Authentication (DPSK, Guest, Sign-On)

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Cloud Infrastructure Management and Operations

- Dedicated Network Operations Center (NOC): cloud operations team and systems
- Fully automated cloud optimization
  - Systematic rollout and migration to new releases
  - Scalability of our backend "pod" systems for tenants
  - Geo-diversity (US-focused at GA)
  - Beta release process and soak testing
  - MSP dedicated cloud
  - Disaster recovery
- Tenant assignment to independent "pod"
- Automatic redirection to managing cluster at login
- Ability to offer multi-tenancy