ADTRAN

WIRELESS SOLUTIONS

Flexible, Cloud-Managed Wi-Fi

| Low TCO | Zero-Touch | Gigabit | Wi-Fi | Open Architecture | **SDN** Enabled |

Benefits

Cloud Freedom
- **Flexible deployment options— public, private and partner cloud**
- **ProCloud Plus, cloud-managed Wi-Fi infrastructure plus operations—a new class of Wi-Fi**
- **Flexible pricing options - Traditional CAPEX and OPEX or full OPEX subscription-based pricing**
- **Freedom of migration**

Deployments Made Simple
- **Zero-IT setup**
- **Zero-touch AP deployment**
- **DynamicSteering**

Unmatched Visibility and Insight
- **Web-based HTML5 admin interface**
- **Customizable reporting and analytics dashboards**
- **Multi-tenanted tiered admin access**
- **Full RESTful Web Services API for automation, orchestration and analytics**

Unsurpassed Security,Reliability, Scalability and Performance
- **Context-aware role-based access control**
- **Layer 7 Device Fingerprinting provides reporting and analytics on device types and device-specific policies**
- **Built-in secure guest access**
- **Built-in Wireless Intrusion Detection (W-IDS)**
- **Built-in High Availability (HA)**
- **Elastic scalability—scale up or down on-demand**
- **Choice of high-performance 802.11n and 802.11ac APs**

Robust Full Life-cycle Services
- **Comprehensive suite of planning, implementation and on-going support services**
- **Optional 24x7 end-user Help Desk**

Overview

ADTRAN® offers the industry's most flexible portfolio of cloud-managed Wi-Fi® solutions built on virtual Wireless LAN (vWLAN), the industry's premier cloud-managed wireless LAN. ADTRAN offers a new class of WLAN with ProCloud℠ Plus, the industry's first and only cloud-managed Wi-Fi infrastructure plus operations service.

ADTRAN offers the most flexible deployment options via a cloud-managed service or as on-premises Wi-Fi solution with the freedom to migrate between them. ADTRAN offers flexible pricing models too - traditional CAPEX and OPEX (vWLAN, ProCloud and ProCloud Plus) or full OPEX subscription-based pricing (ProCloud Subscription Services). ADTRAN's vWLAN® is simple yet powerful: simple in that it is intuitive, easy to learn, setup and use, and powerful with unmatched visibility, security, reliability, scalability and performance. In addition, ADTRAN's ProServices℠ offers the most robust lifecycle professional services—including remote design and configuration assistance, technical support, and end-user Help Desk.

ADTRAN's wireless portfolio includes a family of 802.11n and 802.11ac high-performance Access Points (APs) that are a perfect fit for enterprises of all sizes, including educational institutions, retail, hospitality, and healthcare providers who are looking to move their organizations to a pervasive mobility environment.

Cloud Freedom Without the Lock-in

ADTRAN offers businesses flexible deployment options to fit their business needs including:

- **ProCloud** empowers businesses to quickly enhance their network with a cloud managed solution that minimizes CAPEX with a pay-as-you-grow model, all managed by your partner.

- **ProCloud Plus** provides worry-free, cloud-hosting and management of your Bluesocket Access Points, monitored 7x24 by ADTRAN experts.

- **vWLAN** offers an on-premises cloud-based Wi-Fi solution via a free virtual appliance for VMware, or a turnkey physical appliance.

With ADTRAN, there's no lock-in to a deployment model with freedom of migration. As the business evolves, the wireless services can too, keeping the customer in control and protecting investments.

WIRELESS SOLUTIONS

Simple, Yet Powerful

Unlike other cloud-managed Wi-Fi vendors who compromise enterprise-class features and customization for simplicity, vWLAN offers comprehensive enterprise-class features with an intuitive, easy-to-learn and easy-to-use interface. vWLAN's powerful features offer unmatched network visibility, security, reliability, scalability and performance.

Deployments Made Simple—Auto Provision, Auto Configure, Auto Optimize

- **Zero-IT Setup:** Enjoy a fully functional employee and guest network in minutes with just a few clicks and keystrokes.

- **Zero-Touch AP Deployment:** APs automatically discover vWLAN in the cloud, download firmware and download configuration.

- **DynamicRF:** Radio Resource Management (RRM) technology maximizes performance, adapts to interference, and provides seamless L2/L3 mobility by automatically setting channel and TX power settings, discovering neighbors and load balancing.

- **DynamicSteering:** Band/client steering, load balancing and sticky client prevention technology opens up a brand new dialogue between the Wi-Fi infrastructure and client devices, allowing the Wi-Fi infrastructure to take charge making informed, coordinated, connectivity and roaming decisions from the vantage point of both the Wi-Fi infrastructure and the clients.

Unmatched Visibility and Insight

- **Web-Based HTML5 Interface** enables centralized management of the WLAN from any device, anywhere in the world. No special apps required!

- **Customizable Reporting and Analytics Dashboards** provide real-time and historical insight into health of the network. In addition, the ability to drill down and initiate corrective actions from the same screen offers powerful control over the wireless environment.

- **Multi-Tenanted Tiered Admin Access** supports multiple customers, sites, enterprise divisions or campuses (domains) on a single instance of vWLAN and provides administrators with granular permissions to domains and resources within the domain.

- **Full RESTful Web Services API** for automation, orchestration and analytics.

Unsurpassed Security, Reliability, Scalability and Performance

- **Context-Aware Access Control with Layer 7 Device Fingerprinting** allows you to define security policies based on users, device type, ownership, location and schedules. Businesses can now support BYOD or allow guest access while ensuring highest levels of network security.

- **Built-in Secure Guest Access** with customizable captive portals.

- **Built-in Wireless Intrusion Detection (W-IDS)** to detect and isolate rogue access points in the network.

- **Built in High-Availability (HA)** with zero packet loss failover ensures a reliable, always-on network.

- **Elastic Scalability** allows the network to quickly scale without the constraints of legacy hardware controllers.

- **Choice of High-Performance 802.11n/ac APs** including indoor and outdoor models that are plug-and-play, not requiring manual configuration.

The Most Robust Full Life-cycle Services

ADTRAN offers a comprehensive suite of ProServices that include planning, implementation, and managed services with an optional Wi-Fi end user Help Desk, to ensure a worry-free, wireless network.

- **ProStart:** A comprehensive set of services to build and optimize your Wi-Fi network. ProStart services include network planning and design, remote or onsite implementation and post-install testing and support.

- **ProCare:** Includes on-going access to technical support, after hours assistance, the latest software releases and patches, as well as hardware replacement.

- **Wi-Fi Help Desk:** A 24x7 service for vWLAN and ProCloud Wi-Fi customers, that provides first response to wireless user connectivity issues.

Procloud Managed Services

Description	ProCloud	ProCloud Plus
Elastic Infrastructure		
Pay-as-you-grow scalable infrastructure	•	•
Cloud ready deployments with centralized configuration	•	•
Includes firmware updates	•	•
Centralized Cloud Management		
Single-pane-of-glass to view all ProCloud devices	•	•
View into network health, security, and usage	•	•
Real-time customizable reporting and management dashboard	•	•
Guaranteed Network Uptime and SLAs		
7x24 monitoring of hosted cloud management infrastructure, alerts, and access to support	•	•
Next Business Day (NBD) hardware replacement *(4-hour advance hardware replacement is optional)*	•	•
Configuration back up to the cloud	•	•
Flexibility		
Freedom to migrate between ProCloud Services	•	•
CAPEX and OPEX or Full OPEX Subscription-based Pricing	•	•
Firmware Upgrades		
Firmware upgrades (included)	•	•
Security upgrades for software	•	•
Optional Onsite Support *(for Switches Only)*		
Next Business Day Onsite Replacement	•	•
4-hour Onsite Replacement	•	•
ADTRAN Remote Management Services		
7x24 network monitoring of ProCloud Plus network - hosted infrastructure and connected ADTRAN equipment	•	•
Automatic trouble tickets for key areas, working with the customer for a resolution		•
Configuration support		•
Customized reporting		•
Augmenting IT staff with ADTRAN expertise		•

WIRELESS SOLUTIONS

vWLAN Comparison

	vWLAN Virtual Appliance	vWLAN 1U Rackmount Appliance	vWLAN Desktop Appliance
APs	*1,500+	1,500	8
Tenants	50	50	1

*Scalability (APs) of the vWLAN Virtual Appliance is based on the hypervisor infrastructure specifications (CPU/Cores, Memory). See min resource requirements to support 1,500 APs below.

Virtual Machine Specifications

Resource Requirements (per 1,500 APs)	CPU: 4 cores Memory: 6 GB Disk space: 41 GB		
Supported Verions	Version: ESX/ESXi 4.x/5.x/6.x		

Hardware Specifications

Temperature		Operating: 50° F to 95° F (10° C to 35° C)	Operating: 32° F to 131° F (0° C to 55° C)
		Non-operating: -40° F to 158° F (-40° C to 70° C)	Non-operating: -4° F to 158° F (-20° C to 70° C)
Power		Max: 350W Input Voltage: 100 – 240V Frequency: 50/60Hz	12V DC with 50W AC Adapter
Physical		1.7 in. x 17.2 in. x 14.5 in. (43mm x 437mm x 369mm) (H x W x D)	2.1 in. x 7.5 in. x 7.5 in. (53mm x 190.5mm x 190.5mm) (H x W x D)
		Weight: 16.2 Lbs. (7.4 Kg)	Weight: 6.5 Lbs. (2.9 Kg)
Compliance		RoHS: RoHS2 (2011/65/EU) Compliant	FCC, CE, UL, RoHS

Warranty

Software	90 Days		
Hardware (Parts and Labor)		One Year	One Year

Product Specifications

Architecture

- Centralized Management and Control Virtualized in the Cloud or Data Center
- Distributed Data with Intelligent APs that Enforce Policies at the Edge
- Multi-tenant Support
- Flexible Deployments Options: On-premises, Cloud-hosted, or Managed (ProCloud Wi-Fi)
- Layer 2 and Layer 3 Roaming with Layer 3 Tunnel Load Balancing
- Selective Tunneling for Guest Access in DMZ
- Auto Discovery of Locations (VLANS and Subnets)
- IPv6 Client Support
- NAC DHCP IP Address Assignment Isolating Un-registered Clients at the Edge
- Unified Access with Wired and 3rd Party AP Support
- Zero Touch AP Provisioning
- Zero IT Setup

Authentication

- Local Database (Internal Users)
- Full or Wild Card MAC Address (MAC Devices)
- 802.1X Machine and User for WPA and WPA2
- EAP Methods - EAP-PEAP, EAP-TLS, EAP-TTLS, EAP-FAST, EAP-SIM, EAP-AKA
- Enforce Machine Auth. (Distinguish Between Corp Owned Windows Domain Computers and BYODs such as IPads, IPhones, and Androids
- Web-based (Captive Portal) RADIUS
- Web-based (Captive Portal) LDAP, Secure LDAP, and Microsoft Active Directory (AD)
- Web-Based (Captive Portal) SIP2 Library
- Web Based (Captive Portal) Social Media (Facebook, LinkedIn, Twitter), (Optional ProCloud Wi-Fi Analytics Service)
- Dynamic Role Assignment using RADIUS and LDAP/AD Attributes
- RADIUS Accounting
- RADIUS Session-timeout
- RADIUS Administrative Authentication
- RADIUS MAC Address Authentication
- SAML 2.0 Single Sign On Administrative Authentication

Captive Portal

- Fully Customizable Captive Portals for Guest Access, RADIUS, LDAP/AD, and SIP2
- Library Authentication
- URL Filtering in Un-registered Role for Walled Garden
- External Redirects for 3rd Party Captive Portal Integrations

Diagnostics

- Wired and Wireless AP Traffic Capture
- Ping, Traceroute, Netstat, ARP, Show Processes
- Phone Home to ADTRAN Technical Support
- Show Tech (System Snapshot for Troubleshooting)
- Cloud-based Remote Authentication Test

Built-in Guest Access

- Enter Email Address with or without Email Account Validation
- Click to Accept Terms and Conditions
- Lobby Administrators, Security Personnel, and Conference/Training Organizers can Create Single and Bulk Accounts that Automatically Expire
- Print, Email/SMS Text Customized Receipts for Account Validation (DNA)
- Self Sponsored Accounts
- Sponsored Accounts
- Require RADIUS and/or LDAP/AD Authentication to Sponsor Accounts (Friends and Family)
- Guest Access Logging and Reporting for Security and Marketing

Built-in High Availability

- 1+1 High Availability with Configuration Sync

WIRELESS SOLUTIONS

Product Specifications (continued)

and Zero Packet Loss Failover

Management
- Secure HTML5-Based Administrative Graphical User Interface (GUI)
- Granular Administrative Role Based Access Control
- Customizable Dashboard Branding (Logo/Colors)
- Per Admin Time Zone
- Customizable Reports and Analytics
- Retail Analytics and Engagement (Optional ProCloud Wi-Fi Analytics Service)
- Customizable Notification Templates for Logs, Alarms, and Wireless IDS Alerts (Email, Syslog, SNMP Traps)
- SNMPv2c and Syslog
- vWLAN CLI Via Console, AP CLI Via Console/SSH
- Secure RESTful Web Services API with Multi-Tenant and Granular Administrative Access Support
- Heatmaps for AP Placement, RF Planning/Visualization and Rogue AP Location Tracking
- AP Templates Enable Simple Configuration Updates to Groups of APs
- Scheduled Administrative Jobs and Tasks
- Classroom Management (Optional ProCare Service)

QoS for Voice, Video, and Data
- Bandwidth Management (Incoming, Outgoing)
- WMM (802.11e)
- 802.1p or Differentiated Service Code Point (DSCP)
- WMM Power Save (U-APSD)
- Over the Air Fairness

Security
- Context Aware Role Based Access Control—User, Device Type, Ownership, Schedule, Location(VLAN/Subnet), Block Client to Client Traffic, Over the Air Fairness, QoS, Bandwidth Allocation, Stateful Firewall Rules, Device Specific Rules
- Scheduled Access
- Stateful Firewall Enforced by the AP
- Layer 7 Device Fingerprinting
- Content/URL Filtering (Optional ProCloud Content Filtering service)
- Wi-Fi CERTIFIED WPA and WPA2, 802.11i, 802.1X, PSK, WEP
- Encryption: AES-CCM, TKIP
- VPN Pass-through
- Soft GRE Tunneling
- Secure TLS Management/Control Channel

Built-in Wireless Intrusion Detection
- Rogue AP Detection
- Rogue AP Location Tracking
- More than 40 Wireless IDS Signatures Detecting Spoofed APs, Attacks and Exploits

Smart and Secure AP Upgrades
- AP Pre-imaging Allows APs to Download Firmware While Operating, Reducing Downtime During Software Maintenance
- Secure AP Upgrades Allow APs to Download Firmware from the vWLAN or Server Local to the APs Using Secure Copy (SCP)
- Optional Local AP Upgrades Allow the AP to Download Firmware from Server Local to the AP Rather than Using Precious WAN Bandwidth

Wireless
- 802.11a/b/g/n/ac Support
- Mesh Networking
- Multiple-Input Multiple-Output (MIMO) and Multiple User Multiple-Input Multiple-Output (MU-MIMO)
- A-MPDU and A-MSDU Frame Aggregation
- HT20, HT40 (High-Throughput) and VHT80, 80+80, 160 (Very High-throughput) Support
- Minimum Data Rate
- Configurable Maximum Associated Clients Per Radio
- DynamicRF (Radio Resource Management) for Automatic Channel, TX Power, and Neighbor Discovery
    - Set Once and Hold and Continuous DynamicRF Modes of Operation
    - DynamicRF Scheduled or On-demand DynamicRF Background Scanning
    - AP, Dual AP/Sensor, Dual AP/Sensor Active Client Aware, Sensor and Mesh Radio Modes of Operation
- DynamicSteering (Band/Client Steering, Load Balancing and Sticky Client Prevention Technology) with 802.11k/v support
- Fast Roaming (OKC)
- 802.1Q VLAN Support
- Multicast/Broadcast to Unicast Conversion
- Standards Based Transmit Beamforming (TxBF) with Explicit Feedback
- Increased Receive Sensitivity for Handheld Devices with Low TX Power Such as IPads, IPhones, and Androids
- Support for Apple Bonjour Based Services (Airprint, Airplay), Apple CNA and Microsoft NCSI

Ordering Information

Choose Your Cloud

Public Cloud – ProCloud	Part No.	Part No.
ProCloud for Indoor AP (BSAP 1920,1925, 1930, 1935, 2020, 2030, 2035, 3040, 3045)	NBD	7x24x4
One Year	1100MSPH200112	1100MSPH300112
Three Years	1100MSPH200136	1100MSPH300136
Five Years	1100MSPH200160	1100MSPH300160
ProCloud for Outdoor AP (BSAP 1940, 2135)	NBD	7x24x4
One Year	1100MSPH210112	1100MSPH310112
Three Years	1100MSPH210136	1100MSPH310136
Five Years	1100MSPH210160	1100MSPH310160
Public Cloud – ProCloud Plus		
ProCloud Plus for Indoor AP (BSAP 1920, 1925, 1930, 1935, 2020, 2030, 2035, 3040, 3045)	NBD	7x24x4
One Year	1100MSPM200112	1100MSPM300112
Three Years	1100MSPM200136	1100MSPM300136
Five Years	1100MSPM200160	1100MSPM300160
ProCloud Plus for Outdoor AP (BSAP 1940, 2135)	NBD	7x24x4
One Year	1100MSPM210112	1100MSPM310112
Three Years	1100MSPM210136	1100MSPH310136
Five Years	1100MSPM210160	1100MSPM310160
Private Cloud		Part No.
FREE vWLAN Virtual Appliance (VMware) ($1995 value)		Download Only **(www.adtran.com/downloadvwlan)**
vWLAN 1U Rackmount Appliance (Hardware)		1700900F2
vWLAN Desktop Appliance (Hardware)		1700918F1

Licences

Software License	Part No.
FREE Access Point vWLAN Software License ($235 value)	1951901G1
Access Point Unified User Access (Wired and Third-Party AP Support) Software License (Optional)	1951910G1

WIRELESS SOLUTIONS

Ordering Information (continued)

Choose Your Access Point

Choose Your AP	Part No.
Indoor APs	
Bluesocket 2020: 802.11a/b/g/n/ac; 2x2:2 with four internal MIMO antennas	1700945F1
Bluesocket 2030: 802.11a/b/g/n/ac; 3x3:3 with six internal MIMO antennas	1700948F1
Bluesocket 2035: 802.11a/b/g/n/ac, 3x3:3, with six external RP-SMA connectors	1700949F1
Bluesocket 3040: 802.11a/b/g/n/ac wave 2, 4x4:4, internal MU-MIMO antennas	1700965F1
Bluesocket 3045: 802.11a/b/g/n/ac wave 2, 4x4:4, external RP-SMA connectors	1700966F1
Outdoor APs	
Bluesocket 2135: 802.11a/b/g/n/ac, 3x3:3, with six external N-type connectors	1700962F1