

QUANTUM
RUDDER[®]
Network and Services Controller

QN-RV-1000
ON-PREMISES
CONTROLLER
DATA SHEET

Product Overview

- Unified Management Platform to manage entire networking stack of Wi-Fi, Switching, Gateways, and VPN.
- Quantum Rudder On-Premises Controller provides ease of administration to manage and monitor multi-site heterogeneous networks.
- Micro services-driven architecture to provide resilient and scalable architecture.

Benefits

Scalable Architecture

Quantum Rudder On-Premises Controller is Ultra-scalable. Depending on the device type, it can manage multiple APs, Switches and Gateway. On premise Rudder with HA (Active-Passive).

Graphical Dashboards

It provides comprehensive, APIs that enable applications configuration and real-time monitoring of Quantum Networks devices. Build separate dashboards for individual administrators. The dashboard provides a summary of events occurring on Quantum Networks devices. It gives summarize detail of total sites, devices information, connected clients and critical alarm, and warning if any.

Multi-tier Tenancy

The multi-tier hierarchy provides flexibility to service providers to allow administrators and operators to manage, create and reuse.

Administrative Dashboard

A controller dashboard is a platform that reduces the time required to support and configure large-scale networks. Consistent menus plus consolidated and streamlined navigation shortens time to perform routine tasks such as Access Point, Switch configuration. The administrator can view health and traffic analysis, network alerts and statistics.

Quantum Rudder On-Premises Controller is a network management user interface for Deploying, Monitoring, Managing and Troubleshooting Access Points, Switches and Gateway devices.

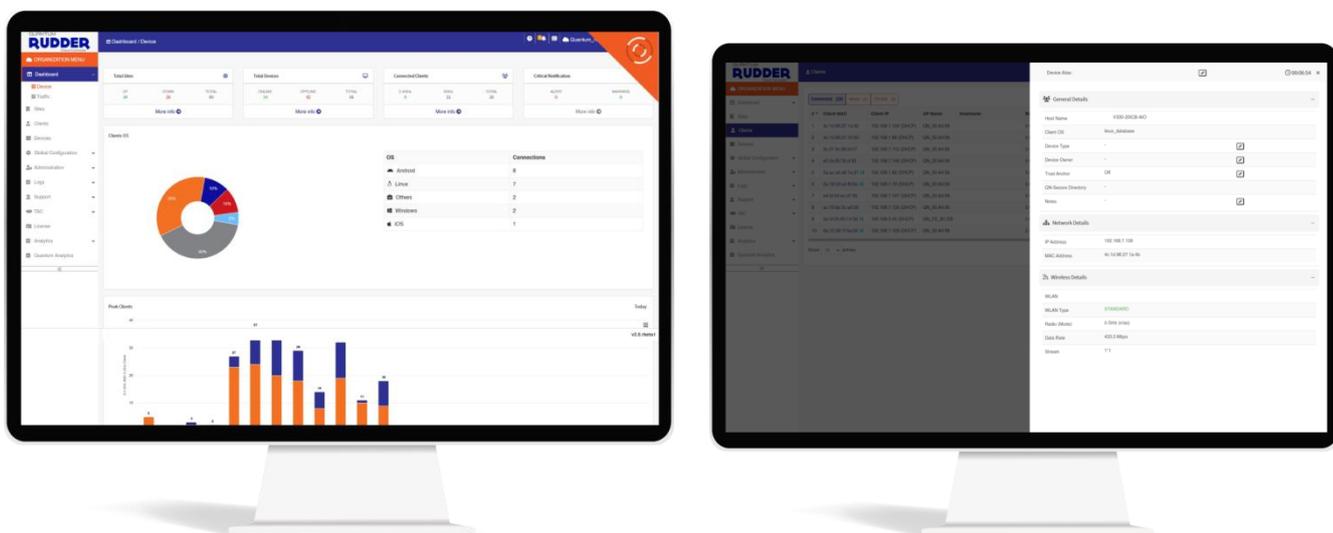
Network Health Monitoring and Troubleshooting

AP, Switch and Gateway Health

Keep an at-a-glance summary of the entire network health through an intuitive dashboard, designed to allow drill down for more information on the go.

Client Health

Client connection diagnostics for wireless client's speeds and simplifies troubleshooting and client problem resolution. The administrator can focus on a specific client device and its connection status with this troubleshooting tool. An intuitive interface tracks and monitors the progress of the user's connection through 802.11stages, EAP authentication, RADIUS, captive portal redirects, encryption key setup, DHCP, and roaming.



Reporting

Enhance reporting structure to provide the data on daily, weekly and monthly schedule which can be export or send to the administrator. The administrator can check on real-time client performance metrics, connections, and traffic, track client SNR (signal-to-noise ratio) and data rate, as well as historical traffic, to overcome troubleshoot connectivity problems.

Configuration and Login Audits

Administrator can keep the logs of activities and login records with time duration.

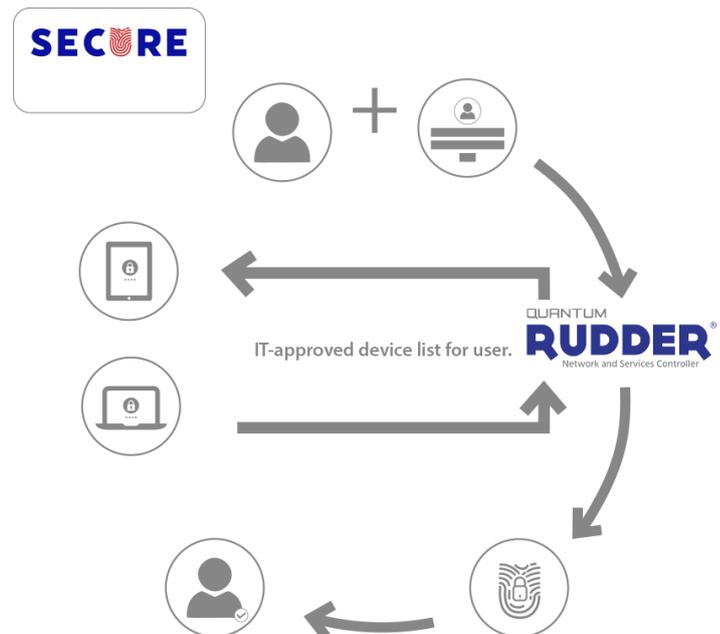
Monitoring

Track individual Wi-Fi client records such as Hostname, IP Address, uptime, wireless details, bandwidth, noise level, signal strength, speed, association history, and device name.

Highlights

Quantum Secure

Quantum Secure jumbles WPA/WPA2 key, pre-configured MAC address and user password to allot an automated randomized passkey and provide access for the device. This device access cannot be used on another device, even by the same user. It ensures client security even in case of a lost device or password compromise.



Quantum Secure+

Quantum Secure + allows users to get authenticated before getting access to the Internet through the Internet Browser. Every user will get web-authenticated by using individual user credentials. Once the user discovers the WLAN (SSID) on their wireless device or laptop or desktop or any other device, they will get a popup to enter the required login information.

Quantum Guest Pass

Provides guest passes for the guest users to allow temporary access. The guest users will get authenticated to access by the administrator.

Quantum Services

Q-services collectively revolutionize network management, ensuring unwavering reliability, top-tier security, and optimal performance within the quantum technology landscape. These solutions are designed to deliver secure, efficient, and high-performance network operations, providing businesses with state-of-the-art capabilities.



Highlights

Wi-Fi Mesh Management

Mesh Wi-Fi is a Wi-Fi system built to eliminate dead zones and to provide uninterrupted Wi-Fi throughout the entire area. Mesh features enable devices in the network to have faster speeds, greater coverage, and a more reliable connection. Mesh Wi-Fi is faster and more efficient at delivering Wi-Fi signals.

Flexible Deployment

Quantum Networks offers flexible deployment options using Quantum cloud, On-premises, and Virtual platforms without compromising security, data privacy, or administrative control.

Theft Protection

Software-based theft protection functionality protects assets from misuse. Access Point will be locked for deployment in any other network until decommissioned from the existing network.



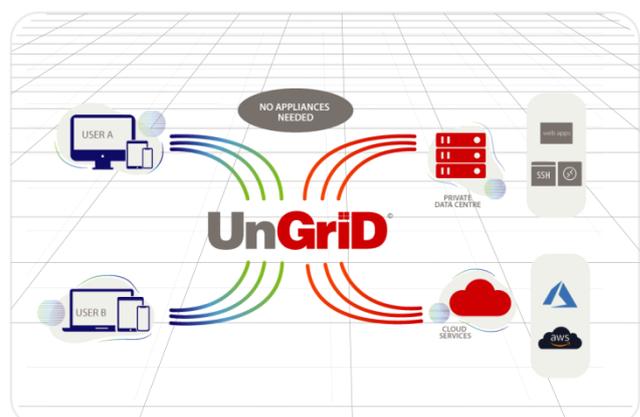
URL filtering

URL filtering for wireless and gateway clients allows businesses to create and enforce access policies that protect users from inappropriate and harmful websites while maintaining access to allowed URLs. Policies are granularly applied at a wireless LAN or user group level with override whitelist/blacklist options.

VPN CONNECTIVITY

UnGrid

UnGrid offers an ultra-scalable solution to onboard Trusted Users, Devices, and Applications on the same network. It's highly scalable and comes with a secure infrastructure to provide reliable performance. It is elastic to scale from a small workforce to thousands of users on the go. UnGrid ensures seamless connectivity of the entire team from anywhere, anytime. Since no hardware infrastructure is required to invest in and manage, it reduces the total cost of ownership.



Rudder

Feature	Description
Device Management	<ul style="list-style-type: none"> ○ Unified controller for Quantum Access points (Wi-Fi 5 and Wi-Fi6), Switches, Gateways and services ○ Super scalable and resilient architecture. ○ High availability/Elastic Clustering
Device Enrollment	<ul style="list-style-type: none"> ○ Manual on boarding ○ Auto Enrollment ○ Pre provisioning ○ Controller Auto Discovery/Authentication
Device Monitoring	<ul style="list-style-type: none"> ○ Monitor device status (Up/Down) ○ Monitor device resources ○ Integrated with external monitoring via SNMP/API ○ Various analytics dashboard for device insights
Client Monitoring	<ul style="list-style-type: none"> ○ Monitor clients across your entire network stack on wired and wireless network ○ Classify device type using various classification modes
Logging / Reporting	<ul style="list-style-type: none"> ○ Centralized logging and reporting of <ul style="list-style-type: none"> ○ Device events ○ Client events ○ Radio resource events ○ Security events ○ Administrator events ○ Logs can be archived to external syslog server ○ User traffic logs can be stored for two years as per TRAI ○ Compliance standards
Network Configuration	<ul style="list-style-type: none"> ○ Operating modes ○ Gateway to inter connect private LAN and public /WAN internet <ul style="list-style-type: none"> ○ Bridge mode ○ Out of Band
Gateway Features	<ul style="list-style-type: none"> ○ DHCP <ul style="list-style-type: none"> ○ Multiple DHCP servers for multiple VLAN segments ○ Configure DNS servers ○ DHCP MAC reservation
	<ul style="list-style-type: none"> ○ Routing <ul style="list-style-type: none"> ○ Network address translation (NAT) ○ Static routing
	<ul style="list-style-type: none"> ○ Ethernet port <ul style="list-style-type: none"> ○ Manage WAN/LAN ports ○ IP address management (Static / Dynamic) ○ VLAN tagging ○ DDNS support (Any DNS / No IP)

<p>Network Device Monitoring (Non Quantum)</p>	<ul style="list-style-type: none"> ○ Supports monitoring of non-Quantum devices via <ul style="list-style-type: none"> ○ Heartbeat ○ API ○ ICMP Ping
<p>Rudder On-Premises Controller Appliance Network Management</p>	<ul style="list-style-type: none"> ○ Support up to 4000 devices (virtual-resource dependent) ○ Support up to 2500 guest users (User count can be extended via increasing virtual resource) ○ Device management options <ul style="list-style-type: none"> ○ SSH/SSL ○ Command Line Interface ○ On device web GUI ○ Reliability / Resilience ○ High availability cluster ○ Disaster Recovery <ul style="list-style-type: none"> ○ Back up on Rudder cloud controller (Based on requirement) ○ Protocol supported <ul style="list-style-type: none"> ○ SSHv2 / SNMP v2/v3 ○ RADIUS ○ TACACS+ ○ NTP

Rudder-Service Management Platform

Feature	Description
Captive Portal Management	<ul style="list-style-type: none"> ○ Internal and External captive portal to authenticate unauthorized users ○ Authenticate enterprise users, guest users and BYOD users ○ Collect user's profile and authentication methods with authentication server ○ Rapidly design integrated captive portal using templates ○ Customization / specific branding of captive portals ○ Customizable user on boarding workflow
User Authentication, Authorization and Accounting	<ul style="list-style-type: none"> ○ Integrated AAA/RADIUS server ○ Proxy / forward traffic to external AAA/RADIUS servers ○ Integrated with various user directory options <ul style="list-style-type: none"> ○ QIM (Quantum Identity Management) ○ Microsoft active directory ○ LDAP ○ Gsuite ○ Oauth
Internet Access QoS	<ul style="list-style-type: none"> ○ Enter QoS on user group, user level ○ Enforce fair usage ○ Customized access plans for limiting Bandwidth, Throughput, Quota (data), Time ○ Content filtering
Security	<ul style="list-style-type: none"> ○ Provision for access to <ul style="list-style-type: none"> ○ Internet only ○ Internet and private applications ○ Whitelist devices ○ Black list devices
BYOD	<ul style="list-style-type: none"> ○ Permit self enrollment of devices through customizable BYOD workflow ○ Enforce BYOD policy
Analytics	<ul style="list-style-type: none"> ○ Top users ○ Top applications
Application Integration	<ul style="list-style-type: none"> ○ PM WANI

Rudder- Access Point Management

Feature	Description
Load Balancing	<ul style="list-style-type: none"> ○ Load balance users between radios / Devices
Roaming	<ul style="list-style-type: none"> ○ Support 802.11 roaming/fast roaming standards
WAN QoS	<ul style="list-style-type: none"> ○ Provision QoS based on <ul style="list-style-type: none"> ○ User Type ○ Traffic type (voice/video/data)
QoS Parameter	<ul style="list-style-type: none"> ○ Data rate, data quota traffic prioritization ○ Assign QoS for user, user group subnet or IP address
WLAN Security	<ul style="list-style-type: none"> ○ Support various Industry Standard authentication methods. ○ Refer to AP datasheet for supported methods. <ul style="list-style-type: none"> ○ Quantum Secure ○ MFP(management frame protection) ○ WIPS/WIDS for various attack signatures) ○ Assign guest VLAN to guest traffic. ○ Integrate with Wi-Fi service management platform for advanced captive portal/guest management ○ Integrate with various user directories. ○ QIM, RADIUS(Integrated), RADIUS (External), Microsoft AD, Gsuite and Oauth
Access Control List	<ul style="list-style-type: none"> ○ Implement dynamic ACL Policies ○ Block traffic by application ○ Block malware, phishing and spam domain
Secure user Authentication	<ul style="list-style-type: none"> ○ Quantum Secure, Quantum Secure+ ○ Quantum Guest Pass
Switch Management	<ul style="list-style-type: none"> ○ Manage through Quantum Rudder management console ○ Direct access to configuration via remote CLI, console or SSH ○ Port settings and PoE control ○ DHCP snooping, Supports IPv4/IPv6, ○ Layer 2/Layer 3 with RIPv2 & OSPF features ○ Create and manage stacks
Gateway Management	<ul style="list-style-type: none"> ○ Manage multiple site gateway devices from a single console ○ Secure access from anywhere using Quantum Rudder ○ Multi-tier administration ○ Ease of access profiles deployments on multiple gateways ○ Notification / alert on ISP connections states
Mobile application - Quantum ACE	<ul style="list-style-type: none"> ○ Manage multiple Access Points ○ Monitor status of sites, APs, client devices, WLAN ○ Create and configure new SSID ○ Manage Quantum guest authentication ○ Supports zero-touch provisioning for AP, Switch ○ Supported platform iOS and Android

Rudder Deployment Matrix

Parameter	QN-RV-1000
Appliance type	Virtual instance
Managed device	As per Virtual resource requirement
Switch	Yes
Gateway	Yes
Network ports	As per Virtual Instance
WLAN	As per Virtual resource requirement
QIM	Yes
High availability	Yes
Gateway extension	Yes
DHCP services	Yes

Virtual Resource Requirements for On-Premises Controller

Parameter	Number of vCPUs	RAM Size (GB) H	Hard Disk (GB)
100 AP	4 vCPU	8 GB vRAM	64 GB vHDD
500 AP	8 vCPU	16 GB vRAM	128 GB vHDD
1000 AP	8 vCPU	16 GB vRAM	256 GB vHDD
10,000 AP	16 vCPU	32 GB vRAM	512 GB vHDD
20,000 AP	32 vCPU	64 GB vRAM	1 TB vHDD
40,000 AP	64 vCPU	128 GB vRAM	2 TB vHDD

Supported virtualization platforms

- VMware
- Microsoft Hyper-V
- Oracle VM
- KVM

Ordering Information

Parameter	Description
Quantum Rudder On-Premises Controller License	<ul style="list-style-type: none"> ○ Access Point management license ○ Switch management license ○ Gateway management license
Quantum Rudder On-Premises Controller Extensions	<ul style="list-style-type: none"> ○ Quantum Identity Manager ○ Quantum Service Management Platform ○ QPASS-Password less authentication