

# AT Tactical Networking System (TNS)

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### AT Tactical Networking System

The AT Tactical Networking System (AT TNS) is family of modules that when combined provide a seamless system for IP Networking, Voice, Data, Sensors, Video and Interconnection with Radio transceivers. The AT TNS integrates with the AT Situational Awareness System and AT Ground Surveillance to form the AT Echelon C3S solution.

The modules of the At TNS solution may be packaged in backpacks, suitcase-style transit cases, or even rack-mount solutions. At roughly 1Kg per module, 1/10th of a typical 1RU server in size and 1/18th of the power consumption, engineers have a wide variety of deployment configuration options available. The modules are compatible with world-wide AC power input as well as DC power sources such as vehicles and radio batteries.

With integrated Power over Ethernet (PoE) the system setup is simplified and reduces the number of cords required to operate attached components.

Due to its rugged construction and extended operating temperature ranges the At TNS can transported rugged and remote environmental conditions.



Pelican Case Solutions



Mini Transit Case and Saleable Rack Mount



Special Purpose Packaging Options

#### Mission Characteristics:

- ✓ Small Team Support
- ✓ Limited Number of Modules with simple network topologies
- ✓ Ease of Transportation is paramount

#### Solution Characteristics

- ✓ "Loose" transport of modules

The Mini-Transit Case is populated with Smart Chassis, available in 3-slot, 4-slot, or 5-slot versions. The Mini-Transit Case is populated with Smart Chassis, available in 3-slot, 4-slot, or 5-slot versions.

- ✓ Quick release modules that can occupy any slot
- ✓ No population restrictions or rules
- ✓ Easy reconfiguration of system

Multiple Options for Rack Mounting are Supported

- ✓ Integral to the Carbon Fiber Transit case is a user removable Rack Mount Frame.
- ✓ Rack Mount Frame can be directly mounted to standard 19" racks and occupies 4U.

- ✓ Utilize module 'Snap Together' features to assembly system in the field.
- ✓ Lightweight power system
  - ✓ Radio batteries for UPS or operation
  - ✓ Laptop Style AC Bricks for AC Power
  - ✓ DC Power source of opportunity in the field (Vehicles, 5590 batteries, etc.)

- ✓ Field replacement of modules for service
  - ✓ Modules can be operated in the transit case
- Smart Chassis are completely independent
- ✓ Provides power system (Rear Access)
  - ✓ Worldwide AC
  - ✓ Wide Range DC (10-36)
  - ✓ Integrated UPS based on 2590 Li-Ion rechargeable battery (~ 1 hour)
  - ✓ Integrated cooling system for high density population of modules

- ✓ Enclosures can be mounted within the Rack Mount Frame.



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The following modules are available

AT 441 Router Module.

- ✓ Operates stand alone or part of larger 4XX system.
- ✓ Multiple power AC DC power inputs
- ✓ Listed on the Joint Interoperability Test Command (JITC) approved products list
- ✓ Cisco 5915 ESR Router with PoE
- ✓ Provides 12V DC to operate KG-250X and other supported devices.
- ✓ Snap together design with power sharing



AT 442 Switch Module

- ✓ Operates stand alone or part of larger 4XX system.
- ✓ Multiple power AC DC power inputs
- ✓ Listed on the Joint Interoperability Test Command (JITC) approved products list
- ✓ Cisco ES2020 Switch with 10 User ports
  - ✓ 8 x T100 Mbit ports with 4 PoE
  - ✓ 2 x 1Gigbit ports
- ✓ Provides 12V DC to operate KG-250X and other supported devices.
- ✓ Snap together design with power sharing



AT 451 Server Module

- ✓ Operates stand alone or part of larger 4XX system.
- ✓ Multiple power AC DC power inputs
- ✓ Tested to Mil-STD 801G (Temp, Vibration, Shock, Humidity and Sand Dust)
- ✓ Snap together design with power sharing



<ul style="list-style-type: none"> <li>✓ Two Solid State Disk Drives configurations <ul style="list-style-type: none"> <li>✓ Dual 1.8"</li> <li>✓ Single 2.5"</li> </ul> </li> <li>✓ I/O includes 2xEthernet, USB, Serial, USB, Display</li> <li>✓ Uses 6 Com Express Module technology</li> <li>✓ (Optional unit with i5 Processor with 16GB and Fanless design)</li> </ul>	
<p>AT 461 RoIP Module</p> <ul style="list-style-type: none"> <li>✓ Operates stand alone or part of larger 4XX system.</li> <li>✓ Multiple power AC DC power inputs</li> <li>✓ Based on Vocality Radio Relay <ul style="list-style-type: none"> <li>✓ Extends Push to Talk radio services over IP Networks</li> <li>✓ 2 or 4 X Radio Ports (4 Wire Interface with E&amp;M Circuits for PTT)</li> <li>✓ Transparent PCM down to 5.3 kbps voice compression</li> <li>✓ Compatible with WAVE (Twisted Pair)</li> </ul> </li> <li>✓ Fanless and environmentally rugged</li> <li>✓ Provides 12V DC to operate KG-250X and other supported devices.</li> <li>✓ Snap together design with power sharing</li> </ul>	 <p>The AT 461 RoIP Module is a black, fanless device with a heat sink on top. It features a WAN port, four RoIP ports (RoIP 1-4), a power input, and a power output. The front panel is labeled with 'RoIP 1', 'RoIP 2', 'RoIP 3', 'RoIP 4', 'WAN', 'Power In', and 'Power Out'.</p>
<p>AT 444 Flex Interface Module</p>	 <p>The AT 444 Flex Interface Module is a black, fanless device with a heat sink on top. It features a WAN port, four RoIP ports (RoIP 1-4), a power input, a power output, and a serial port. The front panel is labeled with 'RoIP 1', 'RoIP 2', 'RoIP 3', 'RoIP 4', 'WAN', 'Power In', 'Power Out', and 'SERIAL ATNC'.</p>
<p>AT 462 Analog Voice Module</p> <ul style="list-style-type: none"> <li>✓ Operates stand alone or part of larger 4XX system.</li> <li>✓ Multiple power AC DC power inputs</li> <li>✓ Based on Vocality Radio Relay <ul style="list-style-type: none"> <li>✓ Supports legacy analog phones on 400 Series IP product line</li> <li>✓ 2 or 4 X Analog FXS Ports</li> <li>✓ Voice Compression (G.723.1, G.726, G.729(A), G.711)</li> <li>✓ Compatible with secure voice requirements, enabling STE calls over IP WAN</li> </ul> </li> <li>✓ Fanless and environmentally rugged</li> <li>✓ Provides 12V DC to operate KG-250X and other supported devices.</li> <li>✓ Snap together design with power sharing</li> </ul>	 <p>The AT 462 Analog Voice Module is a black, fanless device with a heat sink on top. It features a WAN port, four RoIP ports (RoIP 1-4), a power input, a power output, and a serial port. The front panel is labeled with 'RoIP 1', 'RoIP 2', 'RoIP 3', 'RoIP 4', 'WAN', 'Power In', 'Power Out', and 'SERIAL ATNC'.</p>

Depending on the number of users required the AT TNS can be deployed in configurations ranging from a small Pelican case through to rack mount solutions.



### IQ Core

The system is managed using the IQ Core software that provides a single user interface for multiple vendor applications. The benefit of the IQ Core software is that it reduces the complexity of viewing multiple windows of system data into one cohesive system. This reduces training time to just days rather than weeks and reduces the number of field service engineers required to operate the system in the field.



Over time, systems that are deployed in the field can grow and thus the complexity will increase due to requirements for unified capabilities meshing of networks from different carriers such as transceiver radio, cellular, wireless data and satellite communications. As these systems are added to, the control and assurance of operation also increases in complexity. The IQ Core software solves that complexity by providing a unified user interface.

The IQ Core software provides a real-time snapshot of equipment health as well as the ability to backup and restore configuration sets for different application modes. Unlike other networking software, the IQ Core provide integration with a range of different switches, controller firewalls, routers, servers as well software systems for unified communications, MS Active Directory, MS Exchange, Terminal Servers, gateways and VMware virtualization software

### The IQ Core Capabilities and Feature list

Users	Device Management
<input checked="" type="checkbox"/> Move/Add/Change users and roles	<input checked="" type="checkbox"/> Activate/deactivate interfaces

<ul style="list-style-type: none"> <li>✓ Exchange mailbox setup</li> <li>✓ Active directory –add to OU/Groups</li> </ul>	<ul style="list-style-type: none"> <li>✓ Configuration backup, restore and compare</li> <li>✓ System/device change passwords, IPs</li> <li>✓ VT 100/200/300 capable terminal</li> <li>✓ IP SLA</li> </ul>
<p><b>UC/SIP/Voice</b></p> <ul style="list-style-type: none"> <li>✓ Phone system “call detail record” searching &amp; tracking</li> <li>✓ Extensive call and voice quality reporting</li> <li>✓ Phone services setup</li> <li>✓ Phone station setup</li> <li>✓ Auto-dial setup</li> <li>✓ Call-flow diagnostics</li> <li>✓ AS-SIP troubleshooter</li> </ul>	<p><b>Monitoring</b></p> <ul style="list-style-type: none"> <li>✓ Alerts, diagnostics</li> <li>✓ Real-time bandwidth and resource utilization</li> <li>✓ Audit logs</li> <li>✓ Integrated syslog</li> <li>✓ Log file shipping</li> </ul>
<p><b>Virtual Machine Management</b></p> <ul style="list-style-type: none"> <li>✓ Start/stop, monitor</li> <li>✓ Take and restore snapshots</li> <li>✓ Graceful shutdown</li> </ul>	<p><b>System Services</b></p> <ul style="list-style-type: none"> <li>✓ FTP/TFTP</li> <li>✓ Add/Remove/Suspend Device</li> </ul>

### Currently Support Devices and Applications

Please note that AT Communication is constantly expanding this list and works with end users and manufacturers regularly to adapt the IC Core software to their equipment and interfaces.

- ✓ Acme Packet Net-Net 3800 Session Border Controller
- ✓ Aruba Mobility Controllers
- ✓ Avaya Aura AS 5300
- ✓ Avaya ERS 4500 Switches
- ✓ Brocade FCX-Series Switches
- ✓ Brocade vRouter5400/5600
- ✓ Cisco ASA 5500-Series Firewalls
- ✓ Cisco Routers
  - ✓ ISR 1800, 2800, 3800, etc.
  - ✓ ISR G2 models including 1900, 2900, 3900, 4000, etc.
  - ✓ ESR 5915, 5921
- ✓ Cisco Switches
  - ✓ 3750 and 3560-Series Switches
  - ✓ 2020 Embedded Service Switches
- ✓ Cisco Unified Communications Manager (UCM) 7.x and 8.x
- ✓ Cisco UCM Express
- ✓ CradlepointWireless Routers
- ✓ DRS Universal Power Systems UPS 2000TR-III
- ✓ iDirect800/8000-Series Satellite Routers
- ✓ Microsoft Active Directory
- ✓ Microsoft Exchange
- ✓ Microsoft Windows Servers and Workstations
- ✓ MRV Terminal Server
- ✓ NET VX 400 and 900
- ✓ NEXUS HAWK Wireless/Cellular/3G Gateway
- ✓ Echelon 4400 UPS

- ✓ REDCOM SLICE & HDX
- ✓ Riverbed Steelhead WAN optimizers
- ✓ VMware ESXi4.x and 5.x

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