Cisco Integrated Services Router (ISR), 4000 Family

Cisco calls this family of routers "intelligent WAN platforms" which are designed for enterprise branch deployment. The 4000 family ISRs – five models were tested – support various modules and feature integrated support for the diverse applications and aspects of Wide Area IP networking.

Miercom's testing of these versatile systems was especially challenging because each supports a spectrum of different configurations. What's more, the ISRs are offered with several license-upgradeable levels of capacity performance.
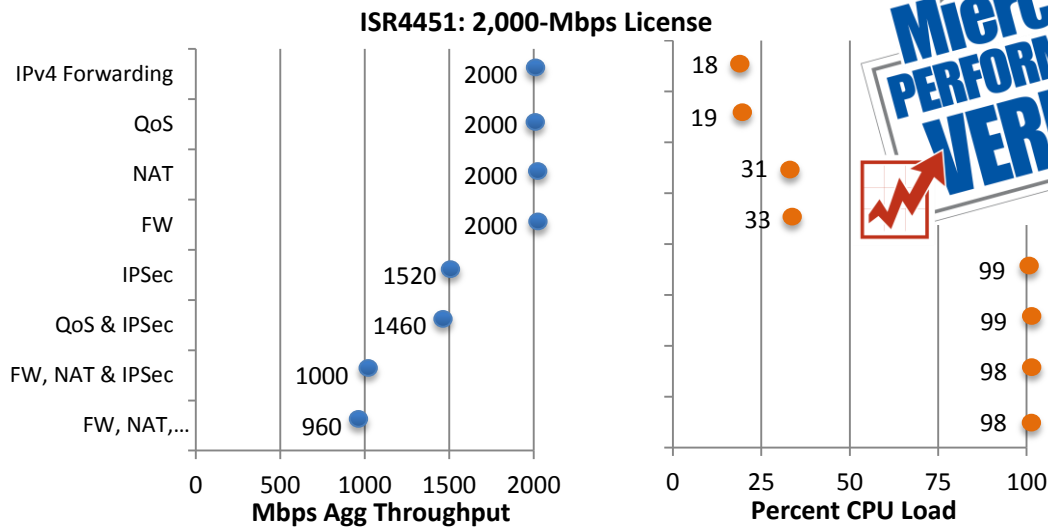
What we Measured

The same set of consistent metrics was applied to each ISR model tested:

➢ Aggregate throughput for each model, at each licensed capacity level.
➢ The amount of still-available CPU processing capacity (headroom) in each test-load scenario.
➢ Performance scalability of the ISR models with the licensed capacity levels.

To better represent real-world traffic, an "IMIX" distribution of test traffic was used in all performance testing. IMIX employs a predominance of short packets, with medium and large packets in a 7-4-1 frequency weighting.

Key Findings

➢ Testing confirmed the ISR models deliver every bit/s of advertised throughput – while IP forwarding or running QoS, NAT or firewall functions.

➢ Even when handling max licensed throughput load, 60-plus percent of CPU capacity was left for added features.

➢ From 50 to 90 percent of max licensed capacity was achieved while concurrently running multiple services.

➢ We found the ISR family offers linear performance growth options via license performance levels.

ISR4451: 2,000-Mbps License

Mbps Agg Throughput

Category	Value
IPv4 Forwarding	2000
QoS	2000
NAT	2000
FW	2000
IPSec	1520
QoS & IPSec	1460
FW, NAT & IPSec	1000
FW, NAT,…	960

Percent CPU Load

Value
18
19
31
33
99
99
98
98

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