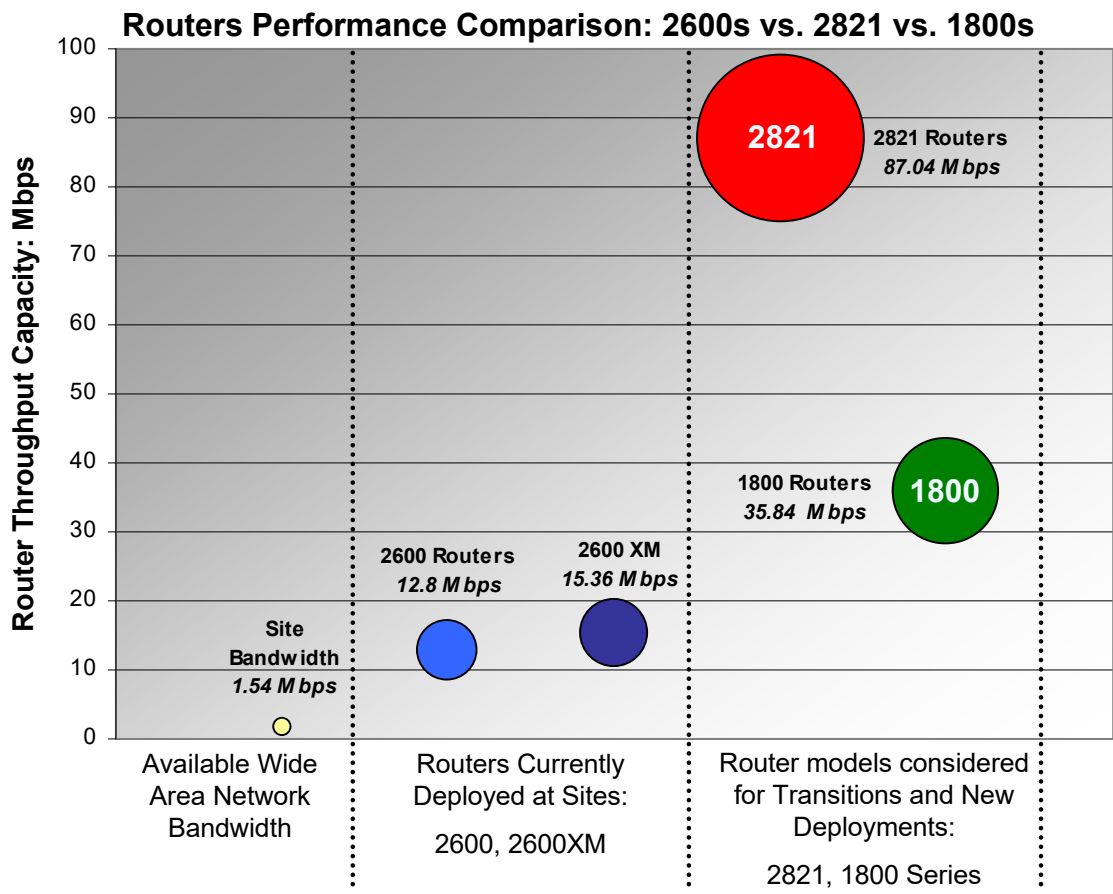


An optimized edge router portfolio provides needed capabilities while freeing savings for “quick win” management systems investments

- ▶ Operations Site 1 router: Cisco 2620, Circuit Capacity = 1.54 Mbps
 - Approximately 19% inbound circuit utilization (.3 Mbps), 13% outbound (.2 Mbps)
 - Approximately 4% of 2620 router CPU utilization during 4 May event



Summarized Router Performance Comparisons

- ▶ Data Throughput Performance Cushions
 - 2600, XM Average 9 times Available Site Bandwidth of 1.54 Mbps
 - 1800 Series provides 23 times Available Site Bandwidth of 1.54 Mbps and 2.5 times 2600, XM throughput
- ▶ Data Throughput: CPU vs. Bandwidth Utilization Analysis
 - 1800 series routers, assuming 2.5 times 2600 series throughput capability would max out at approximately 20% CPU utilization if integrated into the current network
 - 80% of 1800 series router CPU would be available for processing value-added services (NetFlow, QoS/Cos, Multicast, IPS) at the edge
 - GETVPN crypto processing handled by AIM hardware module in 1841 routers in order to offload crypto cycles from CPU

Conclusions

- ▶ Performance Conclusions
 - Circuit bandwidth at sites is the technical performance constraint
 - 1800 routers have significant excess capacity
 - Significant excess processing / throughput capability can be used to support additional value-add services (e.g. IPS, SLA, CoS/QoS)
 - 1800 series routers provide substantial performance improvement over current 2600 / 2600 XM routers with available modularity to support up to four T1 lines (1841 with dual WIC-2T) and >100 networks (secondary IPs) per physical Ethernet interface
- ▶ Energy Conclusions
 - 1800 routers provide 82% operational energy savings vs. 2821
 - 1800 reduce annual CO2 emissions by approximately 110 tons
 - 1800 routers provide approximately \$10,000 in annual network energy savings vs. 2821