



Brochure

THE CHALLENGE

As networks trend toward fixed form factor (FFF) switches, so do the requirements for flexibility, agility, scalability, and density. Internal IT organizations struggle to keep pace with the fluidity of modern-day business demands where network consolidation and reallocations are commonplace. For applications where size, weight, and power (SWaP) are a crucial factor, support for high-density 1G/10G can be critical. Such applications include fiber to the desktop, fiber-connected IoT sensors, and embedded systems.

THE SOLUTION

Based on the RUCKUS® ICX® series switch and paired with breakout optical transceivers, CommScope expects an upcoming release of the solution would be able to support Ethernet speeds ranging from 1G to 100G at a density of 128 or 32 ports, respectively. The ICX platform is based on fixed, single rack-unit (1RU) switches that also support stacking up to 12 switches. Support for breakouts in a stack is also expected in an upcoming release. In a 12-switch stack configuration the solution would be able to provide up to 1,440 ports of 1/10G. ICX stacking technology also supports long distances (up to 10 kilometers) with standards-based optics and cabling.



RUCKUS ADVANTAGE

- Future support for 1G on 40G breakout optical transceivers will allow higher-density 1G in 1RU
- Support for high-density stacking, up to 12 switches
- Support for stacking over non-proprietary transceivers/cables, including long distance, up to 10 km

KEY USE CASES

Notable applications are shown below, but two main take-aways are the applicability to a large breadth of use cases and the ability to easily reconfigure the solution to meet the current need.

DATA CENTER TOP OF RACK (TOR)

Data centers are host to some of the most demanding network requirements. High port density and port speed flexibility play a crucial role in any position in the data center, but this solution really shines in the TOR. In a dual-uplinks scenario, this solution provides up to 120 ports of 1G or 10G (that can be mixed in any increments) or 30 ports of 40G with the same optical transceiver.

Feature "1 Gbps speed on a 40 Gbps breakout transceiver" expected in an upcoming release

Feature "Stacking with breakouts" expected in an upcoming release

Availability of 1440 port at 1 or 10 GbE is based on a 12-switch stack using two QSFP28 ports per switch for stacking

VIDEO SURVEILLANCE NETWORKS

When paired with a CommScope Powered Fiber system, the combined solution supports up to 128 ports per switch with PoE/PoE+ up to 3 km. For a video surveillance network, this can provide coverage for a large campus or venue on a single switch.

FIBER-CONNECTED CAMPUS ACCESS

Whether leveraging fiber to protect classified networks or distributing connectivity across a multistory building, this solution is a great fit. The higher density allows for lower power, space, and cooling requirements. Flexible stacking options allow for fewer management points—providing operational efficiencies. Support for a multitude of interface speeds (1 GbE, 10 GbE, 40 GbE, and 100 GbE) increases endpoint support and eases migration paths.

SOLUTION COMPONENTS

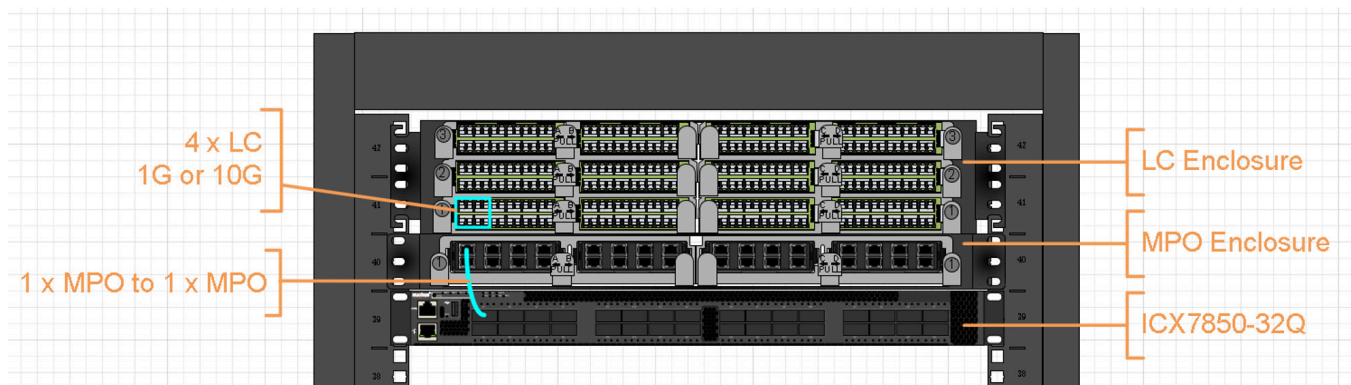
The solution is composed of two main components: a fixed switch and breakout optical transceivers. Any of the current RUCKUS switches with a QSFP port can support the breakout functionality, but this document focuses on the ICX7850-32Q as it can provide the highest density.

RUCKUS ICX7850-32Q is a 32-port QSFP28/QSFP+ 1RU fixed switch. Each port can support a host of 40G or 100G optics and direct-attached-copper (DAC) cables. Of our topic here are the 40 GbE breakout optical transceivers supporting both multimode fiber (MMF) and singlemode fiber (SMF) cabling.

The transceivers are designated by the presence of “INT” in their SKU and can run in one of two modes: standard or breakout

Optic SKU	Mode	Connection(s) supported
E40G-QSFP-SR4-INT	Standard	1 x 40GBASE-SR4
E40G-QSFP-SR4-INT	Breakout	4 x (any combination of) 1000BASE-SX or 10GBASE-SR
E40G-QSFP-LR4-INT	Standard	1 x 40GBASE-LR4
E40G-QSFP-LR4-INT	Breakout	4 x (any combination of) 1000BASE-LX or 10GBASE-LR

Breakout mode requires use of an “octopus” cable, 1 x MPO8 to 4 x LC, or use of structured cabling with patch panels. One such solution could utilize two patch panels to facilitate the breakouts:



SAMPLE BILL OF MATERIALS (BOM)

The sample BOM below shows an ICX7850-32Q fully populated with the 40GBASE-SR4 breakout optics supporting either 32 ports of 40G, 128 ports of 1/10G, or a mix. It is accompanied with “breakout” patch panels and MTP patch cables.

SKU	Quantity	Description
ICX7850-32Q-E2	1	ICX 7850 32-port QSFP28; bundle includes two AC PS and six fans
E40G-QSFP-SR4-INT	32	40GBASE-SR4 QSFP+ optic (MTP 1x8 or 1x12), 100 m over MMF, supports breakout
UD-2U	1	Ultra-high-density 2U modular cassette sliding panel, accepts (12) G2 modules or MPO panels
DM08-24LC-LS-ULL	12	G2 ULL multimode OM4 MPO-8 distribution module, 24LC to 3x8f MPOs unpinned, internal shutters
HD-1U	1	High-density 1U modular cassette sliding panel, accepts (4) G2 modules or MPO panels
360DP-8MPO	4	360G2 distribution adapter pack, 8 x MPO, method B
UGXQXQXQ8	32	ULL OM4 MPO8 QSFP (male) to MPO8 QSFP (male), fiber trunk cable assembly, 8-fiber, plenum
UQXQPQPJ8	32	ULL OM4 MPO8 (female) to MPO8 (female), fiber extension cable assembly, 8-fiber, plenum

CONCLUSION

In summary, the RUCKUS® High Density 1G solution, built on the RUCKUS ICX platform, is simple, reliable, and adaptable. At the heart of the solution is the future support of 1G speeds on a 40G breakout optical transceiver. Support for 1G on a 40G breakout optic makes the ICX unique in the marketplace and is available only through CommScope.

Contact your local account manager today for a quote.



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