Virtualise your network

with Megaport Cloud Router

About MCR

Megaport Cloud Router (MCR) equips anyone with virtual routing capabilities for on-demand private connectivity at Layer 3 from key routing zones around the world. Without physical infrastructure, customers can leverage cloud to cloud networking, private peering between leading public Cloud, IaaS, and SaaS providers, and direct connectivity to any provider on the Megaport Software Defined Network. There is no need to own and maintain equipment and no public IP addresses or Autonomous System Numbers to procure. MCR is a standalone product but can be used in conjunction with physical Megaports.

How it works

A MCR may be used to join two or more independent Virtual Cross Connect (VXC) services into a single routing domain providing connectivity between all of the VXCs attached to the MCR. MCR instances can be set up across the global Megaport Network and are physically homed to one of the Megaport core locations. This provides customers with a private connection to and between any destination in the Megaport Ecosystem. It's important to note that an MCR instance is not physically cross-connected as a standard Megaport would be. However, like a physical Megaport, it can also host Layer 2 VXC connections which may extend to any other Megaport or MCR.

A MCR instance may be used either with or without a physical Megaport connection. If a customer requires multi-region deployments (with a single Cloud Service Provider) or multicloud deployments (with multiple Cloud Service Providers), MCR enables these functionalities. Combining the MCR functionality with a current or new physical Megaport enables benefits such as reduced latencies for inter-region or inter-cloud connectivity.

Cloud to Cloud Networking	Back-Up & Redundancy	Connectivity for born-in-the-cloud	Managed Layer 3 Connectivity	Localised Routing	Dedicated Hybrid Cloud Connectivity

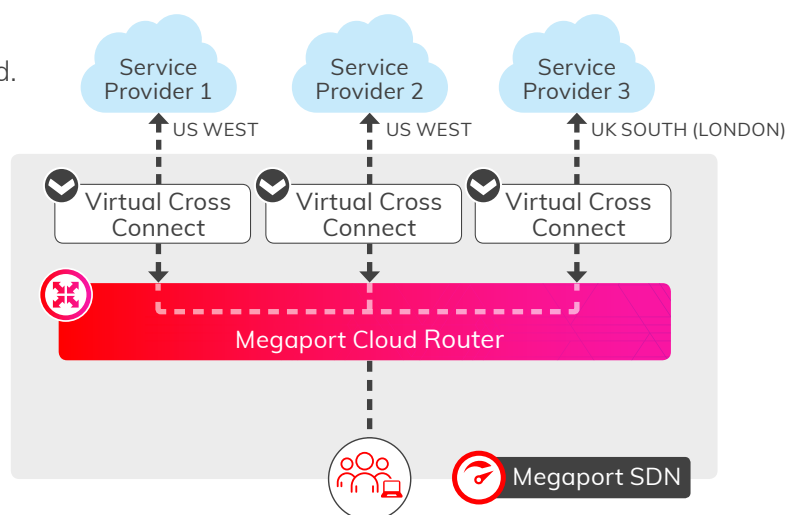## Multicloud and Multi-Region Connectivity
MCR enables private multicloud access, in multiple global regions, with no physical infrastructure required.

Scenario
The customer is consuming Microsoft Azure and AWS services in the US West region as well as Microsoft Azure services in UK South (London).

Solution
With an MCR, the customer can leverage Megaport's global Network to connect directly between multiple leading Cloud Service Providers on the Ecosystem. They can build an any-to-any secure environment for their public and private resources with routing decisions made from a single zone.

Service Provider 1 — US WEST

Service Provider 2 — US WEST

Service Provider 3 — UK SOUTH (LONDON)

Virtual Cross Connect

Virtual Cross Connect

Virtual Cross Connect

Megaport Cloud Router

Megaport SDN

Product Features

- ⊙ MCR provides Network Address Translation (NAT) support to allow greater flexibility in designing a scalable and secure multi-vendor, multicloud, or hybrid cloud scenario to better fit evolving customer requirements.

- ⊙ Megaport will issue customers up to a /29 of public IPs if a customer requests them for public peering (e.g. AWS Direct Connect and Azure ExpressRoute).

- ⊙ Up to 25 private VXCs maximum per MCR (determined based on server and physical Port capacity on the Megaport Network).

- ⊙ Maximum of one public peering CSP VXC.

- ✓ No need to run BGP or have an AS Number.

- ✓ No need for complicated route mapping or router configuration.

- ✓ Ability to establish BGP (border gateway protocol) sessions via portal.megaport.com

MCR 2.0 Additional Features

- ⊙ Four speed tiers capable of 1Gbps, 2.5Gbps, 5Gbps, or 10Gbps routing throughput;

- ⊙ Bidirectional Forwarding Detection (BFD) for BGP that allows for fast link failure detection supporting fast failover of routed traffic;

- ⊙ Border Gateway Protocol (BGP) Multi Exit Discriminator (MED) to support Virtual Cross Connect (VXC) prioritization that tells autonomous systems (AS) the preferred route to take for performance tuning;

- ⊙ BGP shutdown toggle, so users can quickly turn BGP on or off; and

- ⊙ Google API optimization to make it faster and easier to add MCR connections to the Google Cloud Platform and thus remove the need to click between Google and Megaport screens to establish a service.

Global Reach
Leverage Megaport's purpose-built global SDN. Connect between key locations across North America, Asia-Pacific, and Europe.
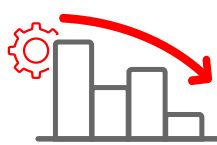
Reduced Ownership Costs
Without the need for physical infrastructure, eliminate network ownership costs and reduce overheads associated with cloud connectivity. Access pay-as-you-need bandwidth.

Private and Secure
Provision private and secure connections to global leading service providers. Scale bandwidth up and down to suit business demands.

Easy Design and Provisioning
Take the complexity out of designing and provisioning a private network between service providers.

Locations & Pricing*

MCR is available at select global data centres and conveniently offered with predefined bandwidth commit levels. The speed specifies the aggregate bandwidth available to all connected VXCs.

*Pricing is correct as at time Sep, 2019. Pricing may change without notice, for latest pricing please see megaport.com/mcr

Supported Services

- - Multicloud connectivity with fully integrated Megaport Portal experiences supported with Amazon Web Services and Microsoft Azure.

- - Ability to quickly establish a VXC to access any service provider in the Megaport Ecosystem.

Routing Zones

Megaport has established global routing zones that support MCR connectivity.

MCR Configuration Options

QinQ Connection/Not QinQ Connection (toggle): This option allows either a single VLAN (non-QinQ/802.1q) or multiple/dual-stacked VLANs (QinQ/802.1ad) to be carried over the given VXC. In most cases, a single VLAN would be used and would be exposed on the target physical Port as a trunked Port instance allowing this Port to contain multiple VXCs to destinations other than the MCR being configured. For certain use cases, however, it may be required to have multiple inner VLANs exposed to this Port via QinQ/802.1ad. The below options will be available for individual configuration for each sub-VLAN/C-TAG if this option is configured as QinQ capable.

BGP Connections: This option should be used where dynamic route table updates are to be propagated from the MCR instance across the VXC to the given Port. Selection of this option where the device connected to the physical Port is BGP capable would be preferred to allow automatic updates of any route table changes in downstream VXCs from a given MCR without manual intervention.

Static Routes: This option would generally be used in place of BGP connections where a customer device is not capable of speaking BGP or the target device requires known manually configured addressing and routes.

NAT IP Addresses: If NAT is required for a given connection (either for static or dynamic/BGP routing), it can be configured. Generally, this will be used for public/private NAT or inter-customer isolation.

FAQs

Does a customer need a physical Megaport to order an MCR?
No, MCR is an entirely virtual product and can be ordered as a standalone product with VXCs connecting to CSPs and other destinations in the Megaport Ecosystem.

Can a customer connect a physical Megaport to an MCR?
Yes, they can connect a physical Megaport to an MCR via a private VXC.

Is there a charge for an MCR if it is ordered in the same location as the required Megaport?
Yes. However, it may not be needed. It's important for the customer to keep in mind where they want routing decisions to occur in their network.

Is QinQ supported?
Yes, single and double tag options are supported, primarily for Microsoft Azure ExpressRoute.

If the customer doesn't have public IPs, will Megaport provide this?
Yes, Megaport will do this automatically if public IPs are not entered in portal.megaport.com when configuring public peering.

Can a customer bring public IPs?
Yes, this must be provided during setup.

Is MCR provisioning immediate once ordered?
Yes.

What is the maximum number of VXCs available per MCR?
25 VXCs.

Can a customer bring private IPs (standard RFC 1918 space) that result in connectivity to public resources?
Yes, customers should bring us private IPs in most cases.

Does Megaport charge for IPs e.g. /29, /30 or /31 if needed?
No.

Is IPv6 supported?
Yes, every field that takes an IP address will accept both IPv4 and IPv6. It is the customer's responsibility to make sure this is also acceptable to a CSP destination on the other end of the connection.

Is MCR postpaid or prepaid?
MCR is postpaid as consistent with other Megaport products.

Can a VXC be ordered from an MCR to any destination in the Megaport Ecosystem?
Yes.

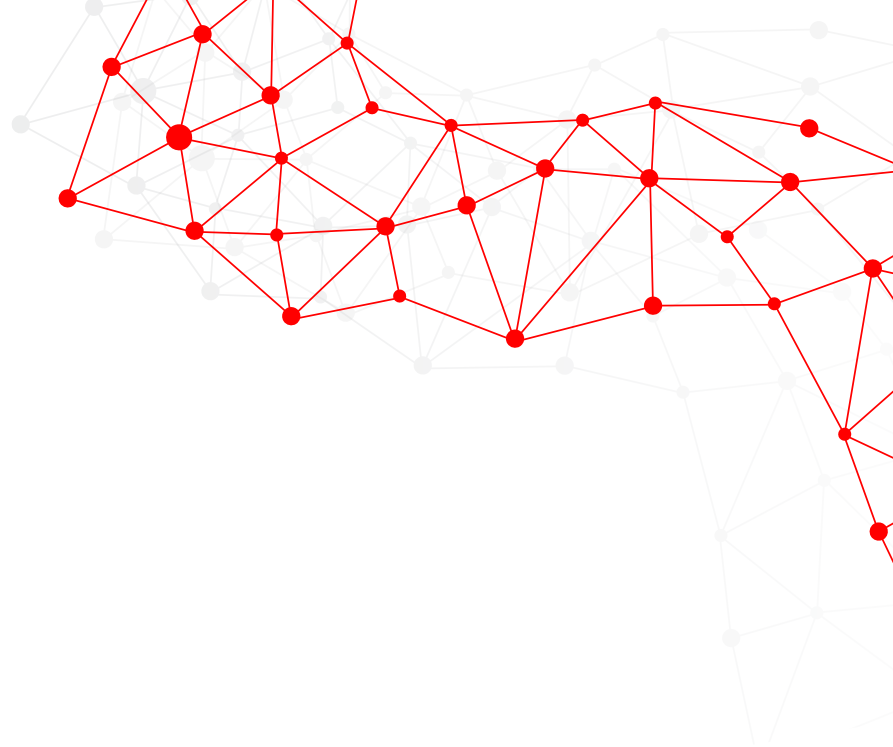**Whose public ASN is advertised if a customer doesn't have one and requires Megaport to provide a /31?**
Megaport's public ASN.

Is the public internet (DIA) involved with MCR?
No, all Layer 2 and Layer 3 is supported via Megaport.

Why would a customer want to make their MCR public on the Megaport Marketplace?
In order for their customers to connect to their services.

We make connectivity easy

Megaport is the highly scaled Network as a Service (NaaS) organisation utilising 100 Gbps technology to deliver dedicated access to cloud services. The Company's Software Defined Network (SDN) enables the interconnection of enterprises and service providers across hundreds of data centre locations around the globe. Fast, flexible, and dynamic, Megaport's connectivity solution is transforming the way businesses reach leading cloud services from Microsoft, Google, Oracle, Amazon Web Services, Nutanix, SAP, IBM, Salesforce, and Alibaba.

Megaport