



Lifesize Cloud, Architecture

A comprehensive guide

Reference Paper | July 2014

A service built to provide a connected experience, running on a platform built to perform—that’s Lifesize Cloud, powered by IBM®. High performing systems, global availability and footprint, speed, scalability and resiliency are a few of the considerations we examined when choosing to partner with IBM, a world-class provider, to deliver the backbone of Lifesize Cloud.



This paper will provide insight into how Lifesize Cloud is structured. We will examine the best-in-class data centers that are fully redundant and the direct network connections to over 20 global carriers. We will explore the resilient modular application architecture and how it’s deployed in clustered, fault-tolerant nodes around the world.

With Lifesize Cloud you can be assured that we’re providing the very best system performance, reliability, resiliency and security.

It starts with a global footprint of data centers, each with up to 5,000 servers.

Leveraging best-in-class methodologies, data center performance variables are closely scrutinized and optimized: space, redundant power, high available multipath network, personnel and internal infrastructure. Data center racks are provisioned with a massive amount of bandwidth, each with 40 Gbps of connectivity, for phenomenal performance.

All data centers are fully redundant with power, cooling and network carriers.

Multiple power feeds, fiber links, backup generators and battery systems provide industry-leading reliability and give IBM the confidence of a 100% network uptime service-level agreement.

Connectivity

IBM data centers in which Lifesize Cloud operates and the global network of IBM POPs are connected by 2,000 Gbps of connectivity in a private fiber optic network. In addition, the backbone of Lifesize Cloud has direct connectivity with over 20 global carriers, including:

- Comcast®
- DE-CIX
- TIE
- HKIX
- Level 3®
- Equinix™
- Time Warner®
- LINX®
- NTT™
- JPNAPs
- RMIX
- SIX
- TeliaSonera™
- NOTA
- Pacnet™
- Starhub
- Telstra™
- NYIIX
- PCCW®
- ANY2™
- Telefonica™
- AMS-IX

These carriers connect to IBM POPs with multiple 10 Gbps connections each and in many cases to multiple locations. Carrier networks connect directly to the IBM network in one or more of the following cities:

- Atlanta
- Hong Kong
- New York
- Tokyo
- Chicago
- Houston
- Palo Alto
- Washington D.C.
- Dallas
- London
- San Jose
- Denver
- Los Angeles
- Seattle
- Frankfurt
- Miami
- Singapore



Global footprint

A seamless platform that goes across any border.

These carriers then extend connectivity through their networks across the globe to tens of millions of homes and businesses. www.softlayer.com

Any Lifesize Cloud user in the world on one of these carriers' networks has a direct high speed connection into our cloud service. This direct connection provides an exceptional video call experience because the call doesn't hop between different network switches and providers, which could add delay and latency and diminish call quality. For customers that aren't serviced by one of these carriers, it's probable that their local carrier has a point of presence with a backbone carrier, letting the call make it to our network at high speed and with a minimum number of hops.

Resiliency

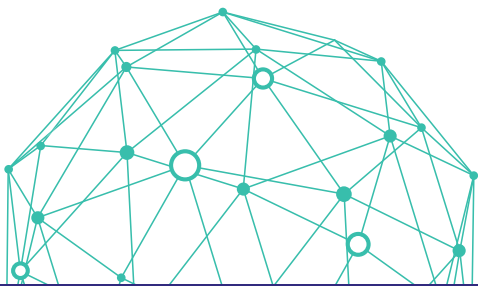
The high availability of Lifesize Cloud extends beyond the industry-leading redundancy of our data centers. Lifesize Cloud was natively designed to be fault tolerant. It is not deployed in just one data center at IBM—it is deployed in seven of IBM's data center locations around the world, and that number will continue to grow. Additionally, Lifesize Cloud is built using a modular architecture, which adds resiliency. Each Lifesize Cloud node comprises one or more instances of our call-control application clustered together geographically. In addition, several instances of our multiparty calling application are associated with each call-control application in each data center.

Even the best solutions will fail at some point in time. The key consideration is what your cloud video provider does to minimize this risk and to mitigate any failures. There are two primary application failures that can potentially occur—a crash in either the multiparty application or the call-control. This is where redundant failover systems are vital. In the event of a multiparty calling application crash, the call will continue with only a barely discernable blip in video as the media is routed to a different multiparty calling instance. The call remains connected and continues on as the application-level redundancy hands off the media processing from a failing multiparty instance to a stable one. The other type of failure that can occur is within the call-control application. All instances of the call-control application across our global footprint are clustered together for both scalability and redundancy. In the event that one instance fails, all users registered to that node will be immediately reregistered to another node. Users that were in a video call will see their calls drop, Lifesize Cloud will immediately register with another node in the network and the call will reconnect as soon as the user presses redial.

If there is a catastrophic event at a data center or network POP, all users immediately fail over to another data center. Service is immediately available, this time through a different physical data center location, and a user simply redials and the call connects.

Based on where you are in the world, Lifesize Cloud dynamically determines which of our nodes you register to. In the background Lifesize Cloud runs a test to see which node has the highest quality link based on your location and assigns it as your primary node. We are constantly assessing the connection quality so, while the user is traveling, the node the user is registered to may change; however, this is completely transparent to the user.

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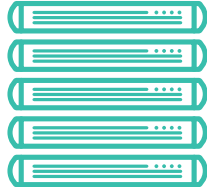


A network of networks
Fast, resilient and seamless around the world.

Lifesize Cloud, Architecture



24x7 on-site security
Rigorous controls.



High performance rack architecture
Better power, bandwidth and support for each server.

Security

Security ranks at the top of all administrator and user concerns. Lifesize respects these concerns and takes security very seriously. All communication among Lifesize Cloud users is fully encrypted with enterprise-class 128-bit AES encryption and TLS. Additionally, every data center and network location is regularly audited and hardened against physical intrusion.

Capacity

While our fault-tolerant application and premier data centers provide the assurance that the service will work, there is one more variable to consider, and that's ensuring that a cloud provider has sufficient capacity for peak demand when you need it most.

Lifesize monitors our network 24/7 and aggressively provisions extra capacity to stay ahead of demand. In fact, we overprovision our capacity so that you can have complete confidence that your calls will always connect. You can view the current status of the network and our service history and sign up for alerts at status.lifesizecloud.com.

Conclusion

With Lifesize Cloud you can be assured that we're providing the very best system performance, reliability, resiliency and security. We carefully scrutinized the capabilities of service providers and selected IBM based on the following criteria:

- Global footprint
- Fully redundant data centers
- Direct connectivity with over 20 global carriers
- Massive amounts of capacity and bandwidth
- Rapid scaling capability
- Failover redundant systems
- Business-class security
- An impeccable track record of service

Lifesize Cloud is all of the above and more. To users, its innovation is in its elegant design, simplicity of use and reliability. To network managers, it's knowing that the solution is globally available and designed for business-class security, performance and resiliency.

ABOUT LIFESIZE

Lifesize is the only company that delivers video conferencing that's as easy, as lifelike and as remarkable as meeting in person. Founded in 2003 and acquired by Logitech in 2009, Lifesize continues to reinvent the video conferencing industry through its commitment to relentless innovation. From the announcement of the world's first high definition video in 2005 to the introduction of Lifesize® Cloud, the only cloud video solution that provides a connected experience across devices and meeting rooms, Lifesize continues to address customer needs to bring high quality and reliable video that is simple to use and support without breaking the bank. Now, no matter where you happen to be, you are just one video call away from having a seat in the meeting.

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