

Chaos Monkey and Big Cloud Fabric

Demonstrating SDN High Availability By 'Chaos Monkey' Style Stress Testing the Big Cloud Fabric with Big Data Benchmarks



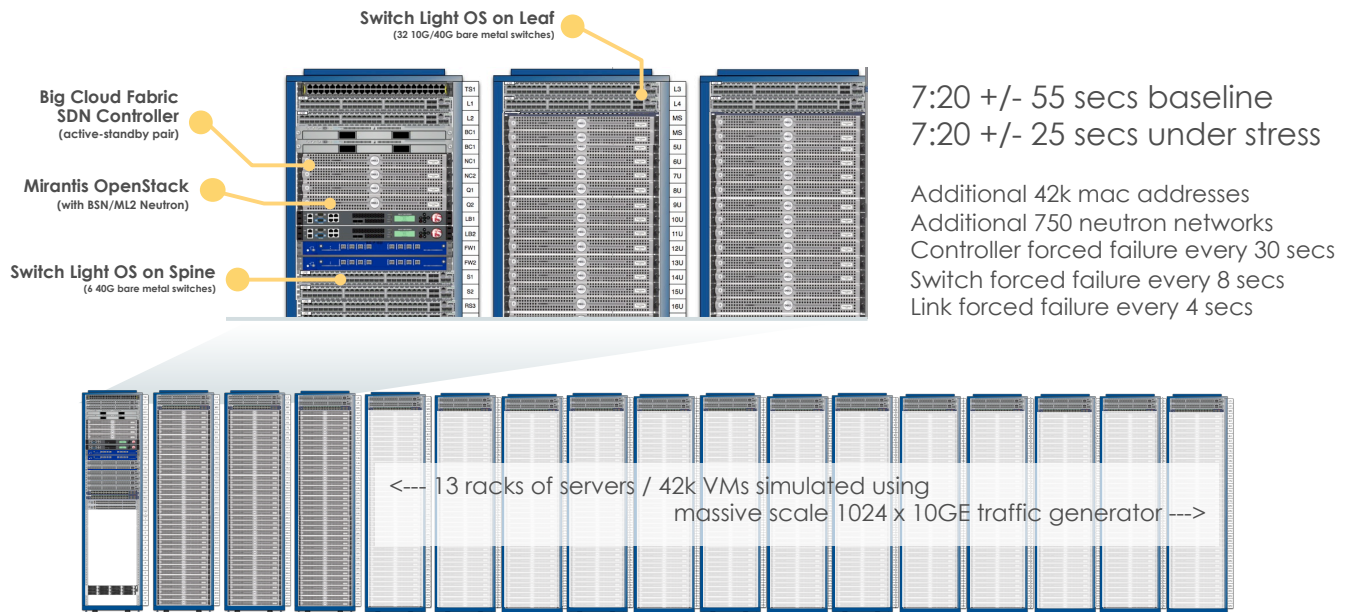
Chaos Monkey testing, a term coined by the Netflix team, involves taking a complex infrastructure and forcing random components to fail while measuring the impact on overall application health.

Applying this in a networking context, the team at Big Switch put together a chaos monkey test with a 16 rack Big Cloud Fabric pod outfitted with compute, storage and software to run the Hadoop Terasort benchmark on Mirantis OpenStack.

Despite adding 42,000 simulated VMs to the network and then forcing failures to the Big Cloud Fabric SDN controllers every 30 seconds, forcing failures to random switches every 8 seconds and random links in the fabric every 4 seconds, there was no change in the application performance.

Conclusion

Despite 42k simulated VMs of background load and 650+ forced component failures during the 'under stress' test runs, there was no detectable change in application performance.



Results At A Glance

Despite heavy network stress, application performance was unaffected by the chaos monkey test.

Column 1 Heading	Baseline	Under Stress
Terasort benchmark run time (mm:ss)	Run 1: 7:02 Run 2: 8:16 Run 3: 6:58 Run 4: 7:05	Run 1: 7:06 Run 2: 6:51 Run 3: 7:34 Run 4: 7:33
Physical fabric topology	16 rack clos (32 leaf / 6 spine)	16 rack clos (32 leaf / 6 spine)
Hadoop controllers / workers	1 controller / 61 workers	1 controller / 61 workers
Background network traffic	None	42,000 simulated VMs
Background neutron networks and OpenStack projects	None	755 neutron networks in 755 OpenStack projects
Forced SDN controller failures	None	~50
Forced leaf/spine switch restarts	None	~200
Forced link up/down events	None	~400

To Learn More

Details of the testing installation, methodology and raw data are available on request. Please email info@bigswitch.com.

Related materials include:

- Try Big Cloud Fabric online at: <http://bsnlabs.bigswitch.com>
- Big Cloud Fabric base information: <http://bigswitch.com/sdn-products/big-cloud-fabric>
- Big Cloud Fabric demo video: <http://www.bigswitch.com/videos/big-cloud-fabric-unboxed>
- Big Cloud Fabric network stack for OpenStack webinar and demo: <http://www.bigswitch.com/webinars>