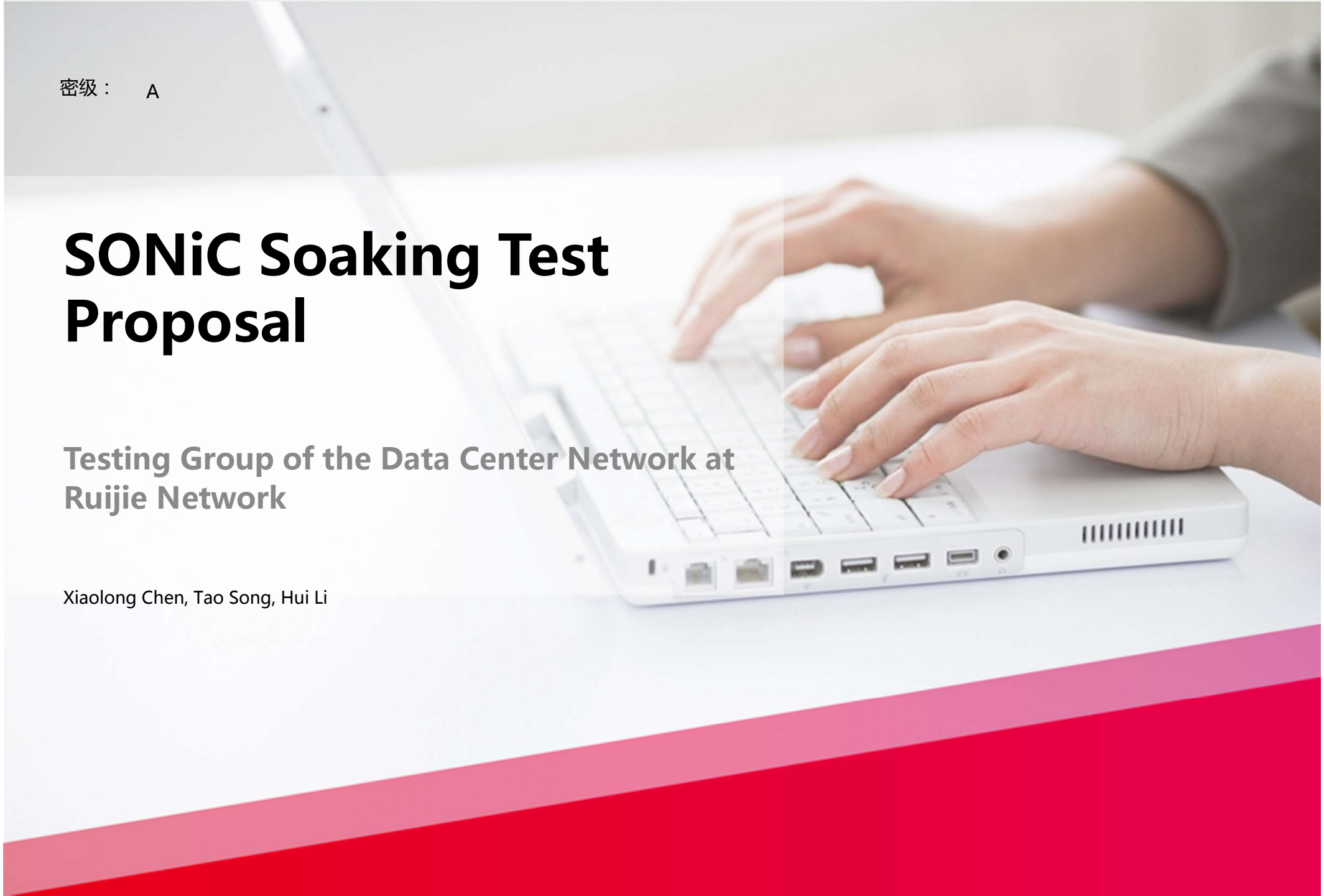# SONiC Soaking Test Proposal

Testing Group of the Data Center Network at Ruijie Network

Xiaolong Chen, Tao Song, Hui Li
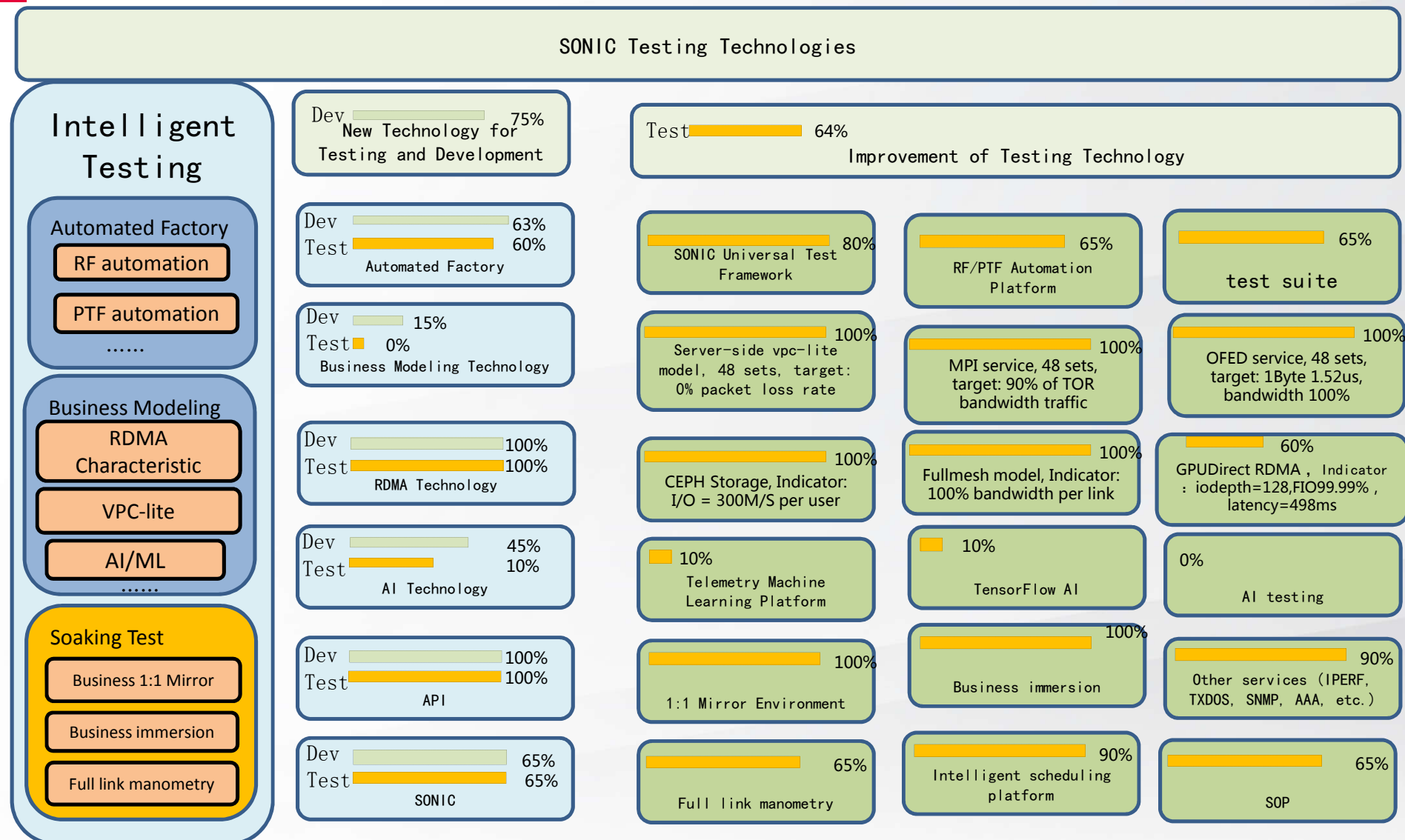
Problem Definition and Solutions

- **Problem Definition :**
  - With the rise of artificial intelligence, high performance computing, distributed storage and other technologies, the performance and stability of data center networks have higher requirements. There are risks in the large-scale deployment of new network hardware and software. Many network operators, such as Ali, Tencent, Baidu and Jingdong, require Ruijie to build a comparable immersion environment in the laboratory to simulate operation drills, discover unknown risks, reproduce online problems and business research.
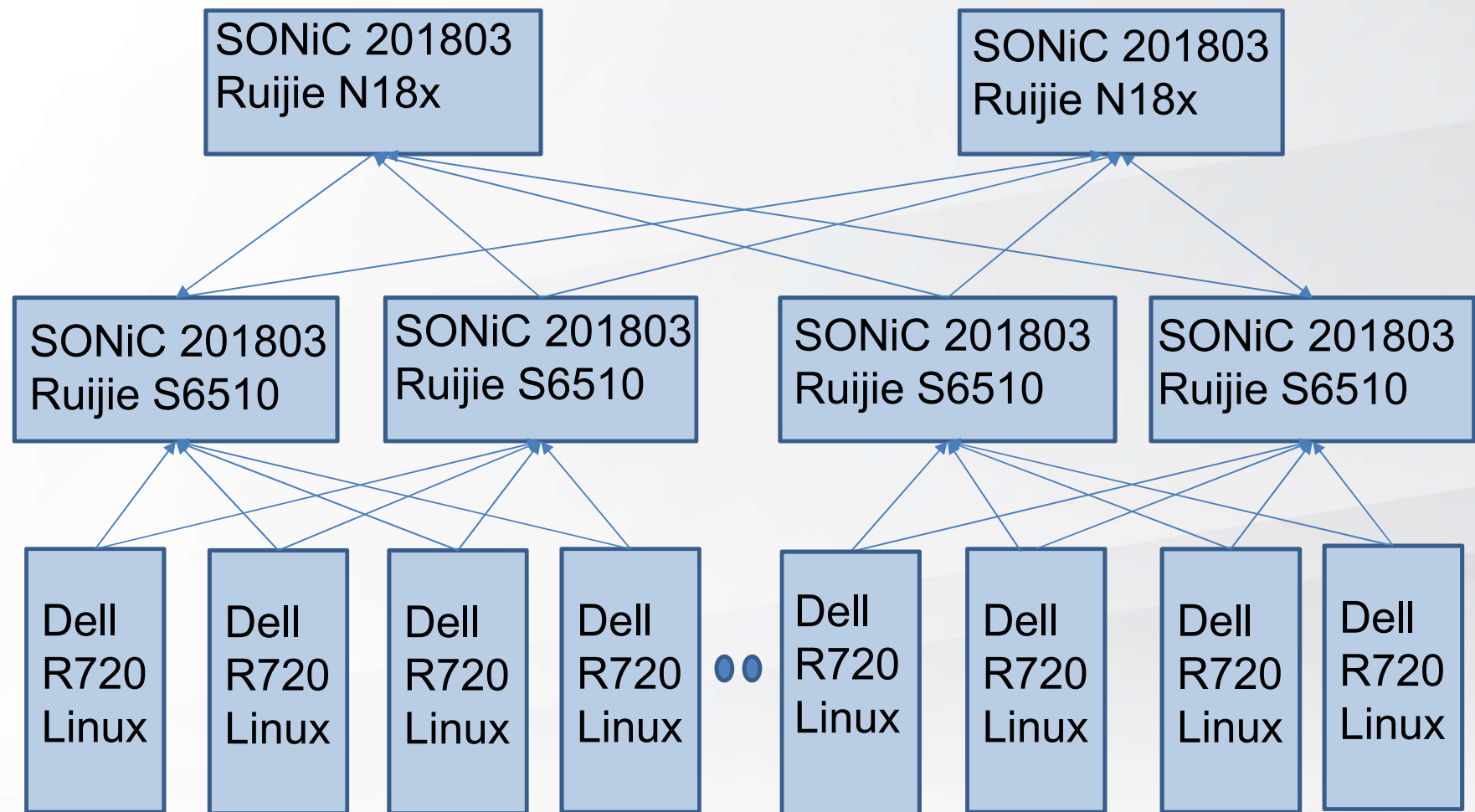
- **Solutions :**
  - automated testing，RF testing，PFT testing
  - Business Modeling, Moving Customer's Field Business to Laboratory
  - Soaking test, the system will run for 7*24 hours under real load to find out long-term problems, such as memory leak, memory rewrite, kernel, resource leak, and measure the stability and reliability of existing network business operation through real business indicators.

Ruijie 锐捷
Networks

Ruijie SONiC Testing Framework

SONIC Testing Technologies

Intelligent Testing

Automated Factory
- RF automation
- PTF automation
- ......

Business Modeling
- RDMA Characteristic
- VPC-lite
- AI/ML
- ......

Soaking Test
- Business 1:1 Mirror
- Business immersion
- Full link manometry

Dev 75% — New Technology for Testing and Development

Test 64% — Improvement of Testing Technology

Dev 63% / **Test** 60% — Automated Factory

Dev 15% / **Test** 0% — Business Modeling Technology

Dev 100% / **Test** 100% — RDMA Technology

Dev 45% / **Test** 10% — AI Technology

Dev 100% / **Test** 100% — API

Dev 65% / **Test** 65% — SONIC

80% — SONIC Universal Test Framework

100% — Server-side vpc-lite model, 48 sets, target: 0% packet loss rate

100% — CEPH Storage, Indicator: I/O = 300M/S per user

10% — Telemetry Machine Learning Platform

100% — 1:1 Mirror Environment

65% — Full link manometry

65% — RF/PTF Automation Platform

100% — MPI service, 48 sets, target: 90% of TOR bandwidth traffic

100% — Fullmesh model, Indicator: 100% bandwidth per link

10% — TensorFlow AI

100% — Business immersion

90% — Intelligent scheduling platform

65% — test suite

100% — OFED service, 48 sets, target: 1Byte 1.52us, bandwidth 100%

60% — GPUDirect RDMA，Indicator: iodepth=128,FIO99.99%, latency=498ms

0% — AI testing

90% — Other services（IPERF, TXDOS, SNMP, AAA, etc.）

65% — SOP

Ruijie SONiC soaking test environment

- VPC-lite technology
- Server Double Uplink
- 20 Dell servers, 4 Ruijie-S6500 servers and 2 Ruijie-N18x servers.

Ruijie SONiC Soaking Test Business

	Business type	Indicator	Number of servers
RDMA	OFED	Latency 2us, bandwidth utilization 100%	20
	Ceph Storage	I/O = 300M/S per user	20
	TensorFlow	100% bandwidth utilization	20
	MPI	100% bandwidth utilization	20
	Hadoop Direct RDMA	90% bandwidth utilization	20
	GPUDirect RDMA	90% bandwidth utilization	20
TCP/IP	Iperf	100% bandwidth utilization	20

Use case: fullmesh flow using ib_write_bw & iperf

Thanks!

Our partners: