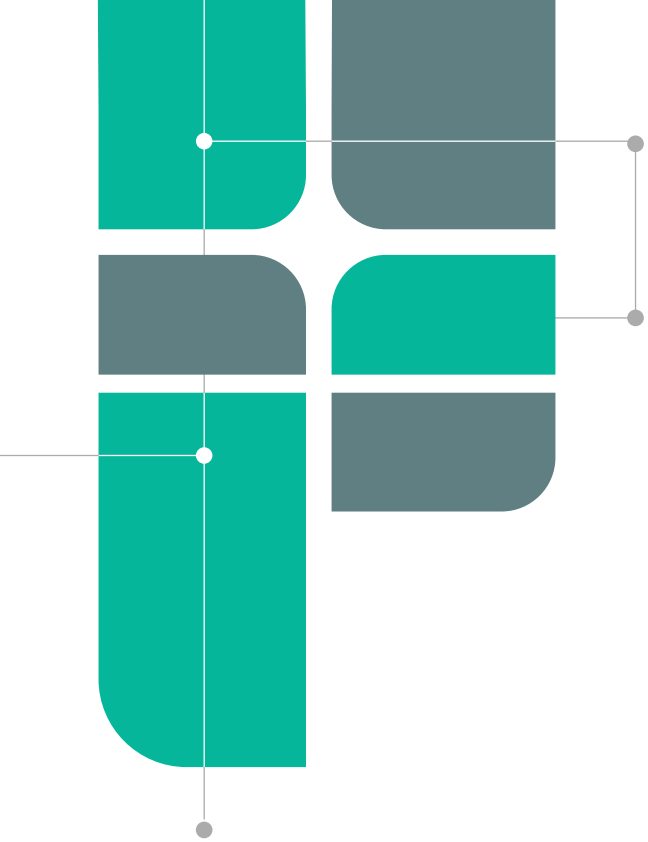

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THE NETWORKING INNOVATION GAP, PT. 1

HOW LACK OF ADVANCEMENT IN NETWORKING CREATES OPPORTUNITY FOR TECHNOLOGY INNOVATION

THE NETWORKING INNOVATION GAP

Networking technology has failed to keep pace with the advances made in computing and storage. There's a $50B innovation gap that is waiting to be closed with new networking technology.

What is the Network Innovation Gap and how can it be filled?

Introduction

Modern networking began almost sixty years ago with the introduction of digital computers and the creation of packet switched networks. These first networks were somewhat primitive and were made up of large computers that were connected together through Interface Message Processors (IMPs). IMPs were computers that ran software that was dedicated to one simple process: routing data packets. Eventually those IMPs evolved into the routers, firewalls, SDN switches, SD-WAN appliances and the virtual network functions (VNFs) that we have today. Yet, while there has been a proliferation of new networking techniques, as a technology, networks still fundamentally operate in the same way as illustrated below:

The Three-Legged Stool of Evolution

Networking, compute, and storage are parts of a three-legged macro-evolution that is arguably the foundation for the information age. Advances in each domain - compute, storage and networking - have helped drive incredible advances in the productivity of our societies. So much so that we are nearing a point that the only limitation on what we create will be what we can imagine. But we are not there quite yet.

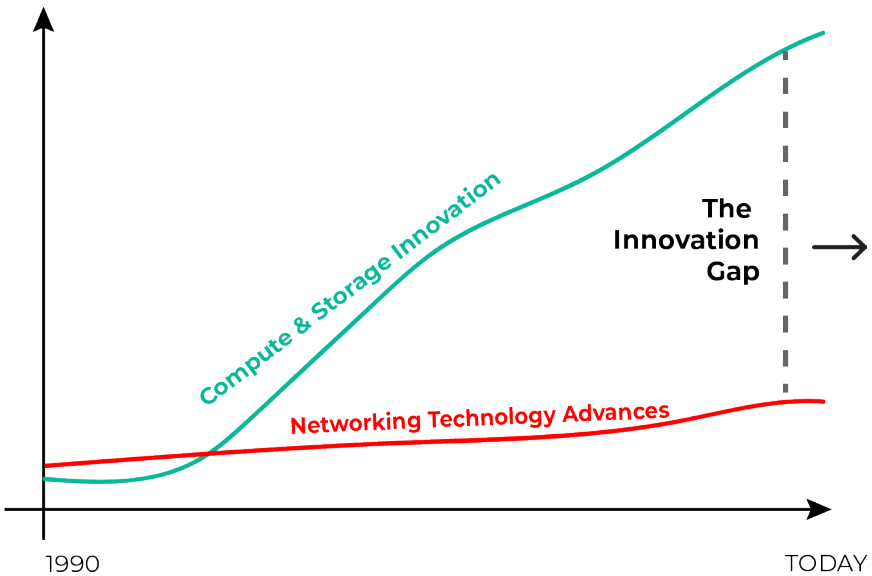
As much as networking has evolved over the last decade, it has lagged behind the revolutionary changes seen in the fields of compute and storage. Ignore the technological advances driven by Moore's Law in all three domains and instead, consider the foundational advances in how each domain processes information.

At the time networks started routing packets, computers were programmed with punch cards and operated using linear programs - i.e. step 1, then step 2, then step 3 etc. Fast forward to today where we have virtual computers running artificial intelligence software. Storage systems, on one hand, started with punch cards followed by magnetic tapes, then floppy drives, hard disks and optical systems; and soon enough holographic systems. These advances in compute and storage are not just evolutionary. These are radical changes to the core foundational processes. Every revolutionary change in these domains has driven a corresponding leap in value creation. Yet, networking has barely evolved. There is a tremendous gap in the technological levels in these three domains.

Metaphorically speaking, one leg of our three-legged stool is a lot shorter than the others.

The Innovation Gap Opportunity

The gap in network innovation has created the opportunity for development of another round of technology fueled value creation. The key to taking advantage of this opportunity is to bring networking solutions to market that help bridge business process gaps caused by the unequal advances in compute and storage. Below are a few areas ripe for major transformation.



Opportunity Areas

- DevOps Enablement
- Network API Integration
- Multi-Cloud Applications
- Intent-Based Connectivity
- Composite Content QoS
- Encryption Everywhere
- Cost Aware Routing
- Network Value Expansion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