



赛灵思 Alveo 数据中心智能网卡 自适应加速解决方案

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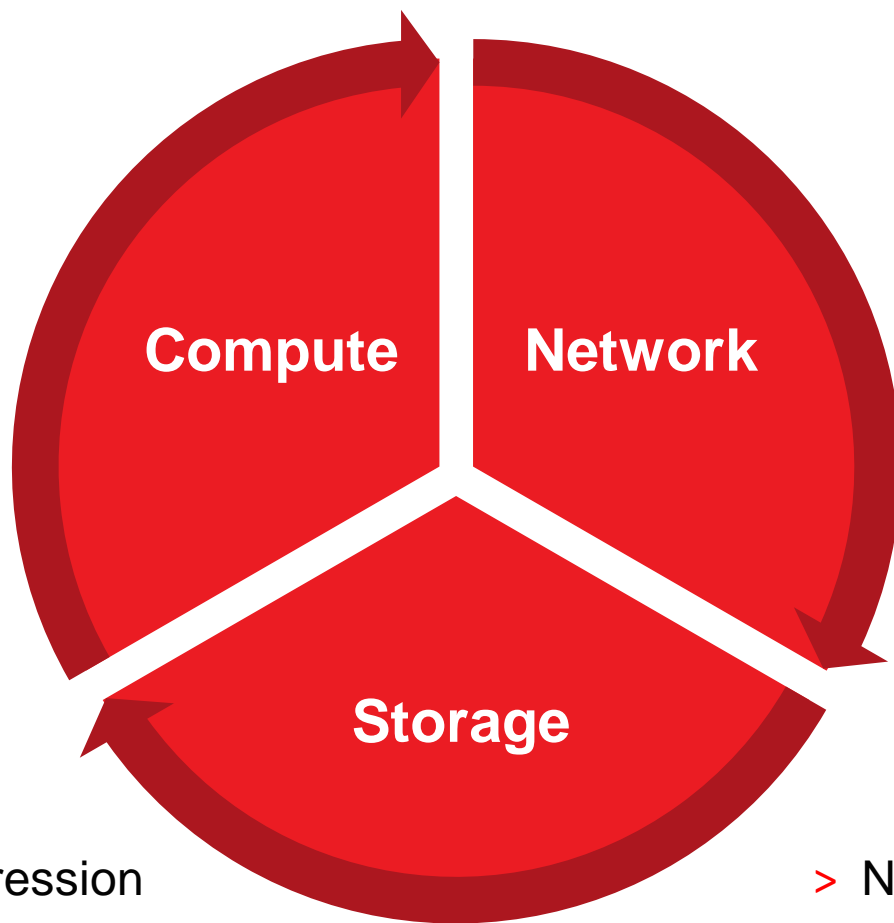
2019年3月19日



数据中心动态

迅速增加的工作负载让服务器不胜负荷.....

- > Machine Learning
- > Video Transcoding
- > Big Data Analytics
- > HPC
- > Financial



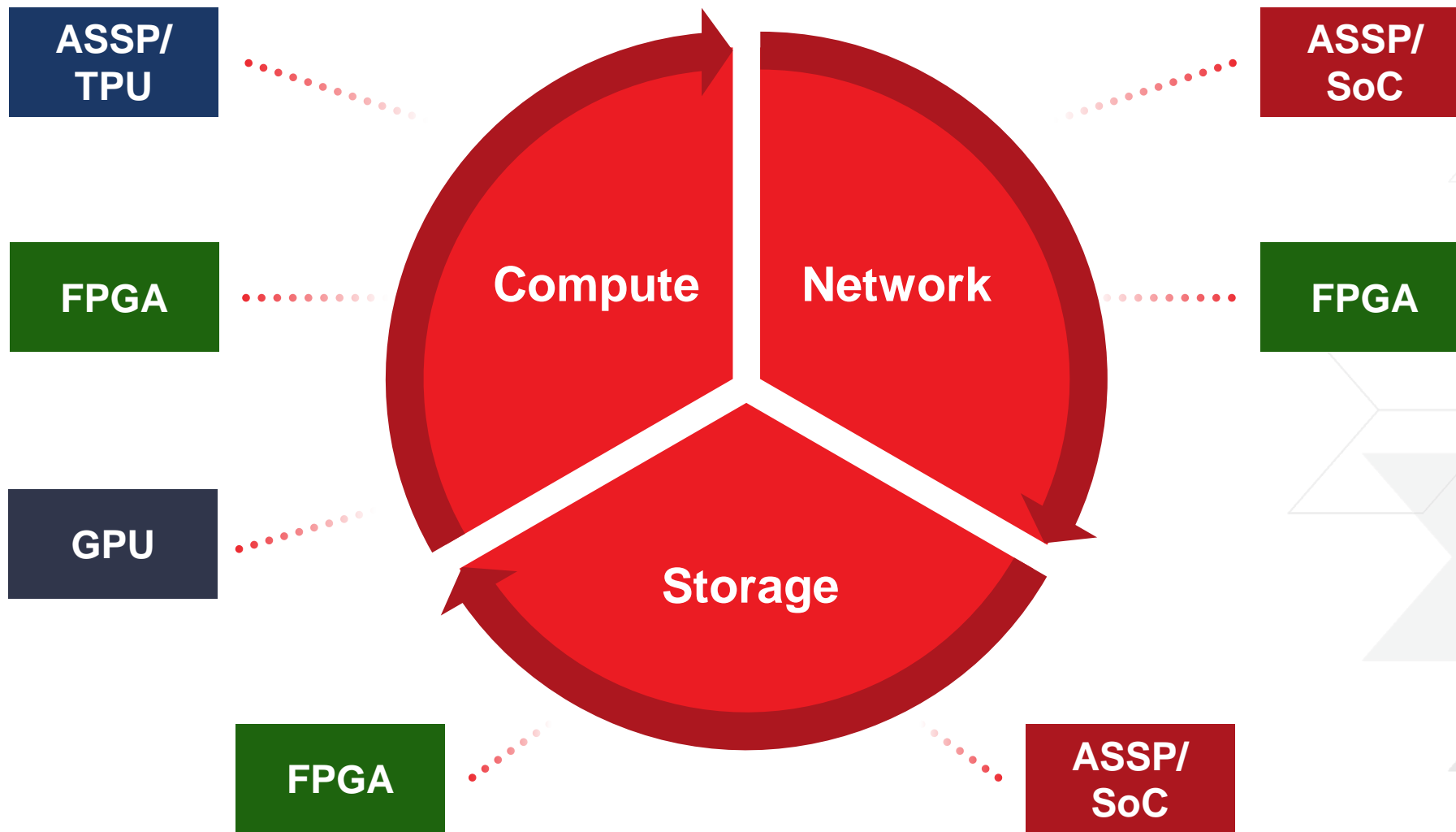
- > Virtual Switching/Routing
- > Connection Tracking
- > IPSec
- > SSL/TLS
- > DDoS/Malware Detection

- > Compression
- > Encryption

- > NVMe
- > RDMA

异构加速的兴起

用于加速和卸载服务器的领域特定处理.....



FPGA 独一无二的独特优势定位

> General

Can address a wide range of acceleration use cases across Compute, Network, and Storage

> Adaptable

Can change the design or add functionality very quickly as compared to years for ASSP design

> Dynamically Reconfigurable

Can repurpose the same hardware and/or change the mix of workloads as conditions change

> Performant

Deeply pipelined, massive on-chip memory bandwidth, hardened functions

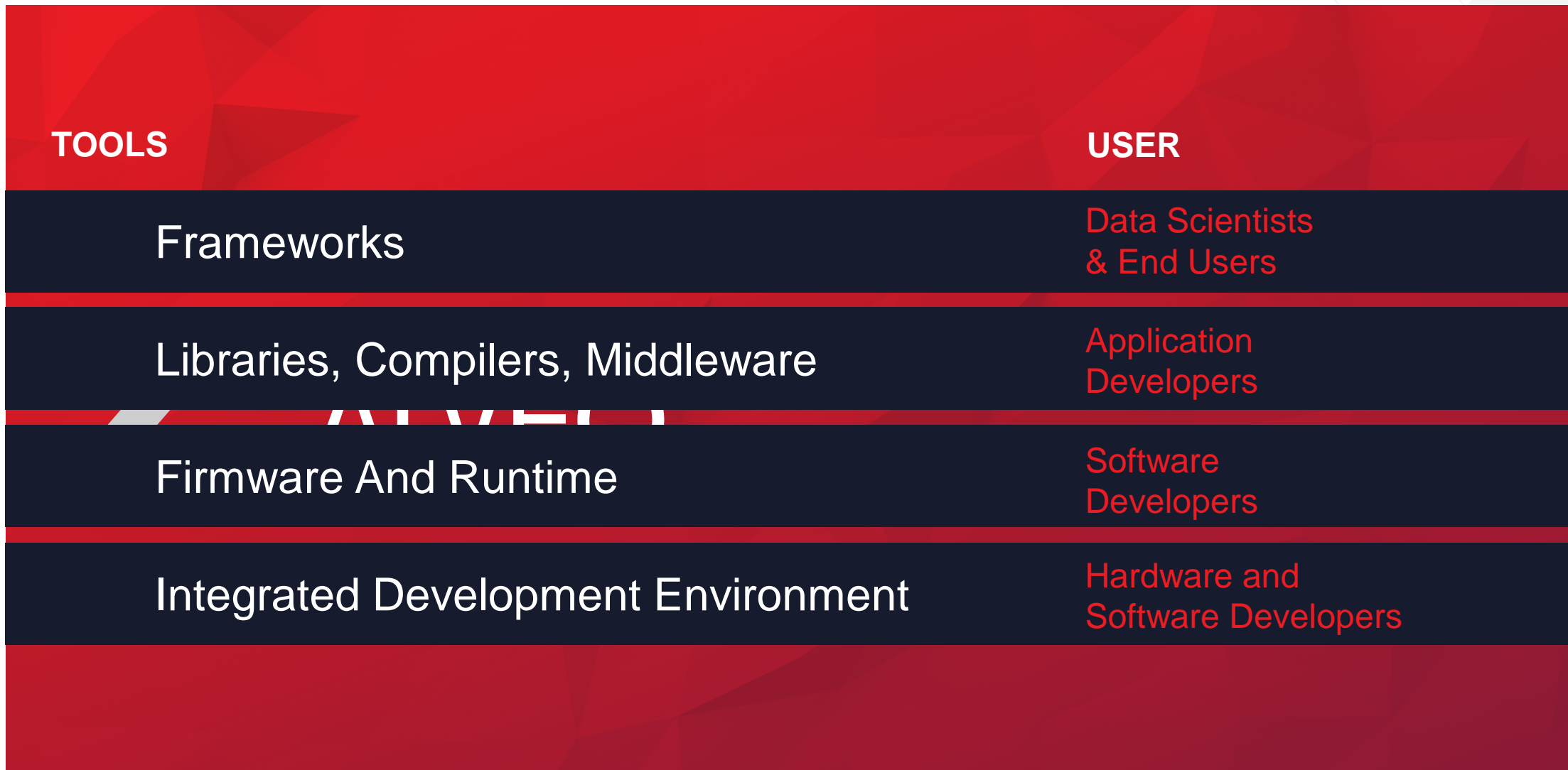


Xilinx Alveo 加速器卡

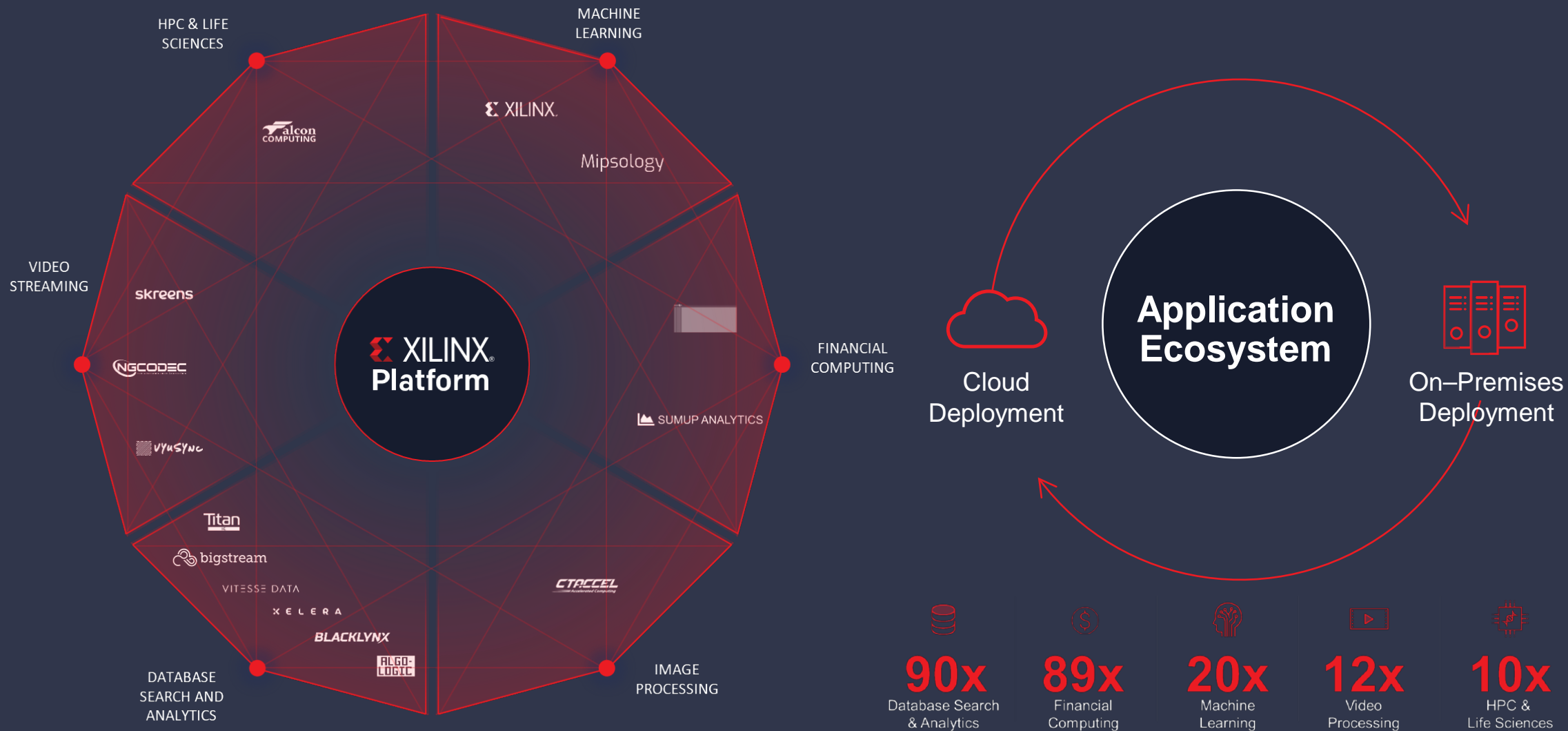
- > Introduced in 2018 and based on Xilinx FPGA technology
- > A board family optimized for a wide range of heterogenous workloads
- > Dynamically reconfigurable to adapt to changing workloads
- > Part of a full platform for adaptable acceleration



Xilinx 加速器平台



Xilinx 加速器生态系统



计算加速示例

Alveo U280 with HBM



- > RocksDB acceleration using Eideticom NVMe-based Computational Storage Processor (NoLoad™)
- > Optimized DellEMC/AMD server with Alveo U280 achieves 6X transactions per second and 2.5X processor efficiency
- > Easy to deploy NoLoad™ API integrated into RocksDB software stack

Xilinx Alveo Acceleration + Eideticom NoLoad

存储加速示例

Samsung Smart SSD

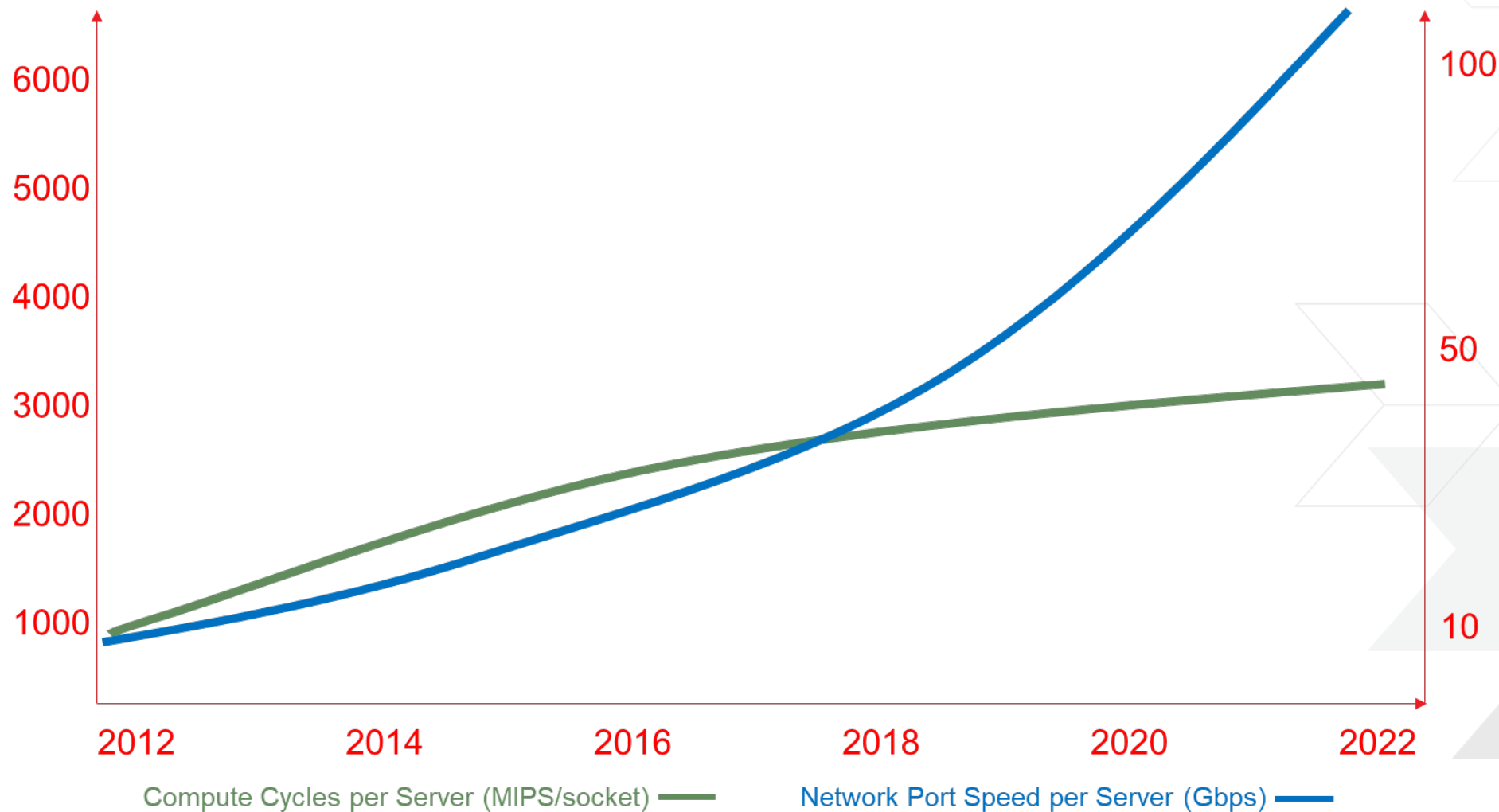


- > Samsung Smart SSD Accelerates Tableau Data Analytics with Bigstream SparkML
- > Bigstream Apache Spark runs 4X faster with Samsung Smart SSDs
- > Samsung Smart SSD combines SSD and Xilinx acceleration into a computational class storage device
- > Experience the acceleration of computational storage today on Nimbix

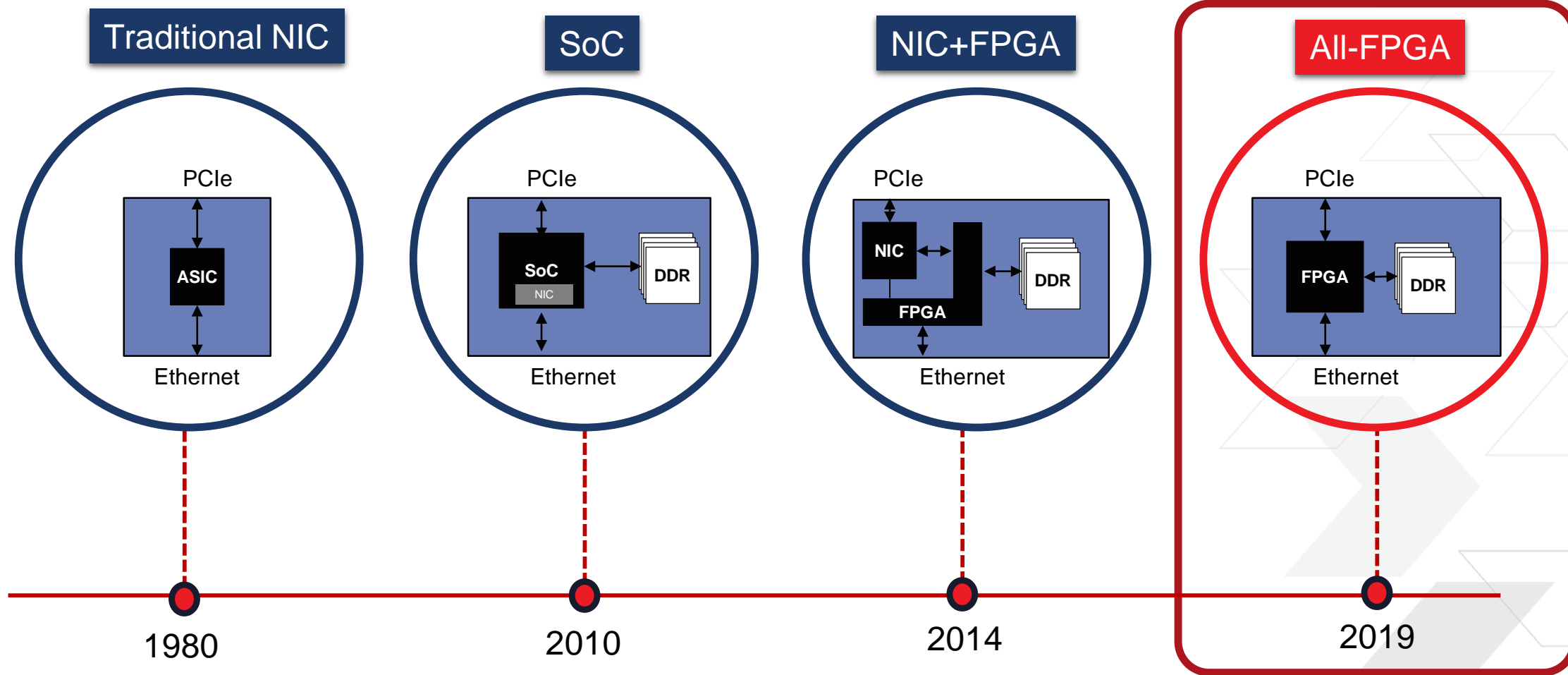
Samsung SSD + Xilinx Acceleration + Bigstream SparkML

新的挑战 – 网络加速

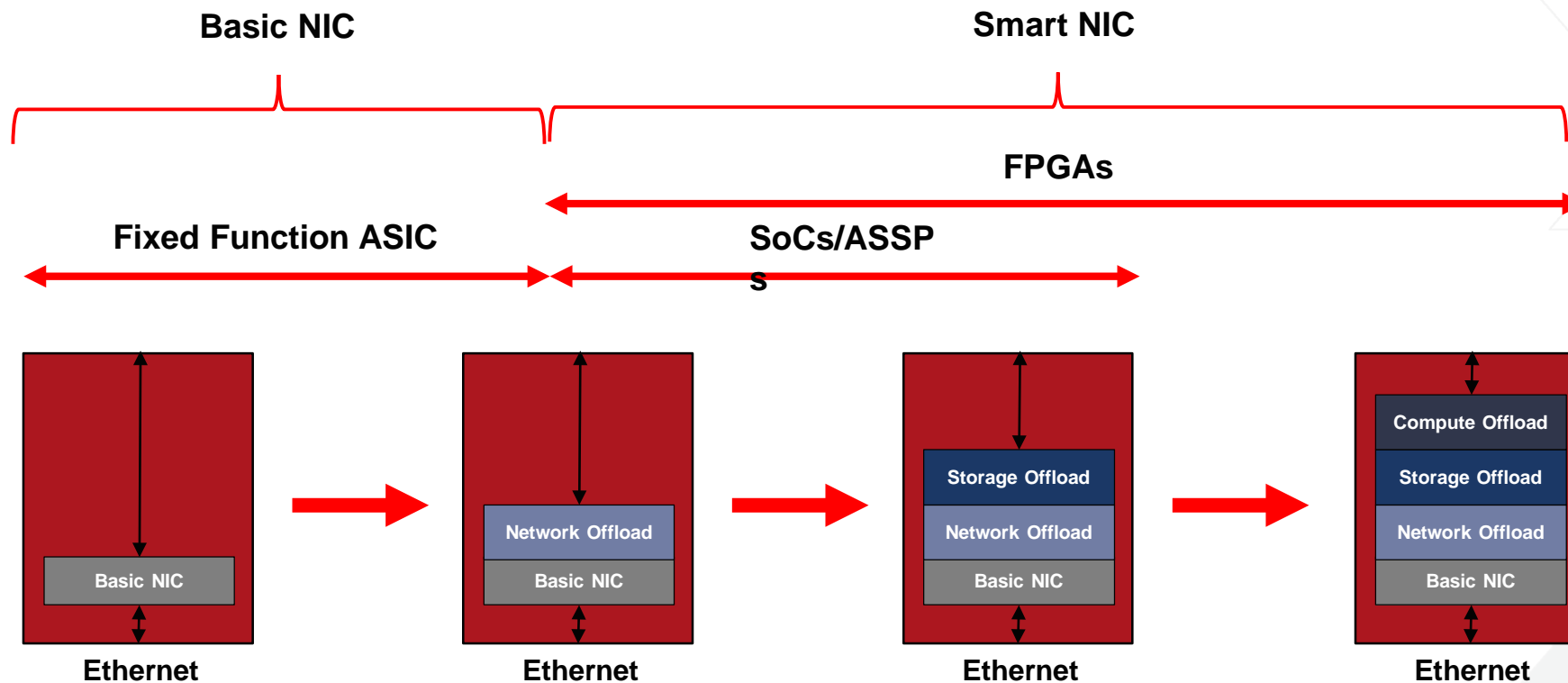
Port Speeds Far Outstripping CPU Performance Growth...



向全 FPGA 智能网卡的演进



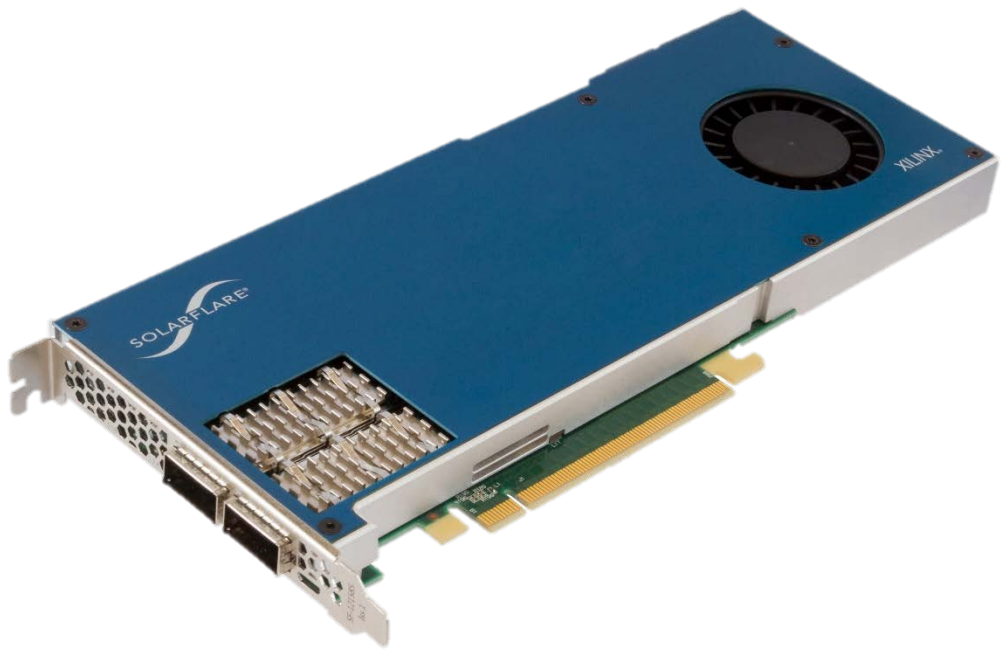
面向多样化工作负载的全 FPGA 智能网卡



Xilinx 和 Solarflare 展示集成 NIC 功能的 100G 全FPGA

网络加速示例

Solarflare 2x100G NIC



- > 100G NIC functions integrated in a single Xilinx FPGA
- > Adaptable and extensible to support new protocols and acceleration functions via P4 and C/C++
- > Extreme small packet performance (100 Mbps Full Duplex)
- > Full solution including firmware and host software drivers

经验证的集成 Xilinx FPGA加速的Solarflare NIC技术

总结

Xilinx FPGAs enable Compute, Storage, and Network Acceleration

Hardware Performance with Software-level programmability

All-FPGA NIC solutions for 100Gbps and beyond

Rich set of IP, Tools and Boards

Adaptable.
Intelligent.