ZTP Thermal & Power

Programmable Switches and Aggregation Switches

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Releasing the Power of In-Network Aggregation With Aggregator

By offloading partial of the aggregation computation from the logical central parameter servers to network devices like programmable switches, In-Network Aggregation (INA) is a general,

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What Is an Aggregation Switch and How to Choose?

Discover the role of aggregation switches. Explore differences between aggregation, access, and core switches, and choose the right model for

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Multi-Tenancy

In this article, we propose a multitenancy- and redundancy-aware in-network aggregation (MARINA) scheme that preferentially aggregates highly redundant data at a programmable switch and

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FLASH: FPGA-Accelerated Smart Switches with GCN Case Study

Some communication switches, e.g., the Mellanox SHArP and those in the IBM BlueGene clusters, are augmented to process packets at the application level with fixed-function collectives.

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What Is an Aggregation Switch and How to Choose?

An aggregation switch is a network device that consolidates traffic from multiple access switches, wireless access points, or other edge devices and

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What is an Aggregation Switch? , Features and Practical Benefits

Conclusion: What is an aggregation switch? In network architecture, they are now extremely important. The technology behind these switches is link aggregation which is the process

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P4COM: In-Network Computation with Programmable Switches

The emerging programmable switches make in-network com-putation (INC) possible, potentially reducing the aggregation communication bottleneck. Figure 1 illustrates the promising performance

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Beyond the Basics: An In-Depth Analysis and Multidimensional

This section provides a high-level overview of programmable data plane technology and the evolution from early vertical market concepts to the current state-of-the-art PISA switches.

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In-network aggregation for data center networks: A survey

In-network aggregation (INA) technology is a new approach to accelerate aggregation tasks and reduce traffic by offloading aggregation function on network switches. In this paper, we

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SRA: Switch Resource Aggregation for Application Offloading in

NetChain exploits recent advances in programmable switches to store data and process

queries entirely in the network data plane.

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MPI Collectives with Programmable Smart Switches

In this paper, we investigate the use of smart switches for faster MPI reductions. In the simplest case, there is one high-radix switch in the middle of a star topology with direct connections to all the

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An Overview of P4 Programmable Switches and Applications

P4 programmable switches enable programmers to control how packets are processed, produce fine-grained measurements, customize parsers and functions, and compute at line rate

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Multi-Tenancy

In this article, we propose a multitenancy- and redundancy-aware in-network aggregation (MARINA) scheme that preferentially aggregates highly redundant data at a programmable switch

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S5700 Series Switches Product Description (V200)

Product Characteristics Huawei S5700 series Ethernet switches are next-generation energy-saving GE switches designed to provide high-bandwidth access and Ethernet multi-service aggregation.

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SwiSh: Distributed Shared State Abstractions for Programmable

etwork functions on pro-grammable switches entirely in the data-plane. We explore several schemes to build a shared variable abstraction, which differ.

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Multi-Tenancy

In this article, we propose a multi-tenancy and redundancy-aware in-network aggregation (MARINA) scheme that preferentially aggregates highly redundant data at a programmable switch

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Abstract As the scale of distributed training grows, communication becomes a bottleneck. To accelerate the communication, re-cent works introduce In-Network Aggregation (INA), which moves the

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SRA: Switch Resource Aggregation for Application Offloading in

Programmableswitchesempowernetworkapplicationswithline-ratepacketprocessing performance by allowing the offloading of applications. However, the resource of a programmable switch is extremely

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Aggregation Switch

An aggregation switch refers to a type of switch used to connect multiple ToR switches to a core switch/router in a cloud data center network. It enables high-bandwidth aggregation ports to be

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Advancing Network Monitoring with Packet-Level Records and

In this paper, we thus propose HybridMon, a hybrid solution that combines condensed packet-level monitoring with selective flow-based aggregation to strike a new balance between eficiency and

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Traffic Monitoring Using Programmable Switch Hardware for In

Finally, the process of using programmable switch hard-ware for network trafic monitoring is most efective when considered as in-network aggregation.

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Aggregation switches and routers

The expected growth of gigabit and multigigabit services requires operators to architect network access scalability upfront. For this reason, we have delivered a

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SRA: Switch Resource Aggregation for Application Offloading in

Programmableswitchesempowernetworkapplicationswithline-ratepacketprocessing performance by allowing the offloading of applications. However, the resource of a programmable

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Enabling Fast and Flexible Distributed Deep Learning with Programmable

We design Libra that accelerates the distributed sparse DL training with in-network gradient aggregation on pro-grammable switches. Specifically, it offloads the aggregation task for "hot" parameters from

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P4 In-Network Aggregation for Federated Learning

This project demonstrates the concept of In-Network Intelligence, where the gradient aggregation phase of Federated Learning (FL) is executed directly inside a programmable switch instead of a

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Efficient Data-Plane Memory Scheduling for In-Network Aggregation

As the scale of distributed training grows, communication becomes a bottleneck. To accelerate the communication, recent works introduce In-Network Aggregation (INA), which moves

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Aggregation Switch

In Chapter 4, we described several types of data center networking equipment including virtual switches, top of rack switches, end of row switches, fabric extenders, aggregation switches, and core switches,

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Scaling Distributed Machine Learning with In-Network Aggregation

Training machine learning models in parallel is an increasingly important workload. We accelerate distributed parallel training by designing a communication primitive that uses a programmable switch

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Fixed Port L3 Managed Ethernet Switches

The HPE Aruba Networking CX 6300 Switch Series is a modern, flexible, and intelligent family of stackable switches ideal for access, aggregation, and data

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