Product Brief

# OPTICAL CIRCUIT SWITCHING FOR AI INFRASTRUCTURE

July 2026


iPRONICS ONE

Building the AI Optical Network Fabric
for Large-Scale AI Systems.

# AI Infrastructure Is Reaching a Network Inflection Point

## 1. Executive Summary

As GPU clusters grow, networking increasingly determines AI infrastructure performance, efficiency, and scalability.

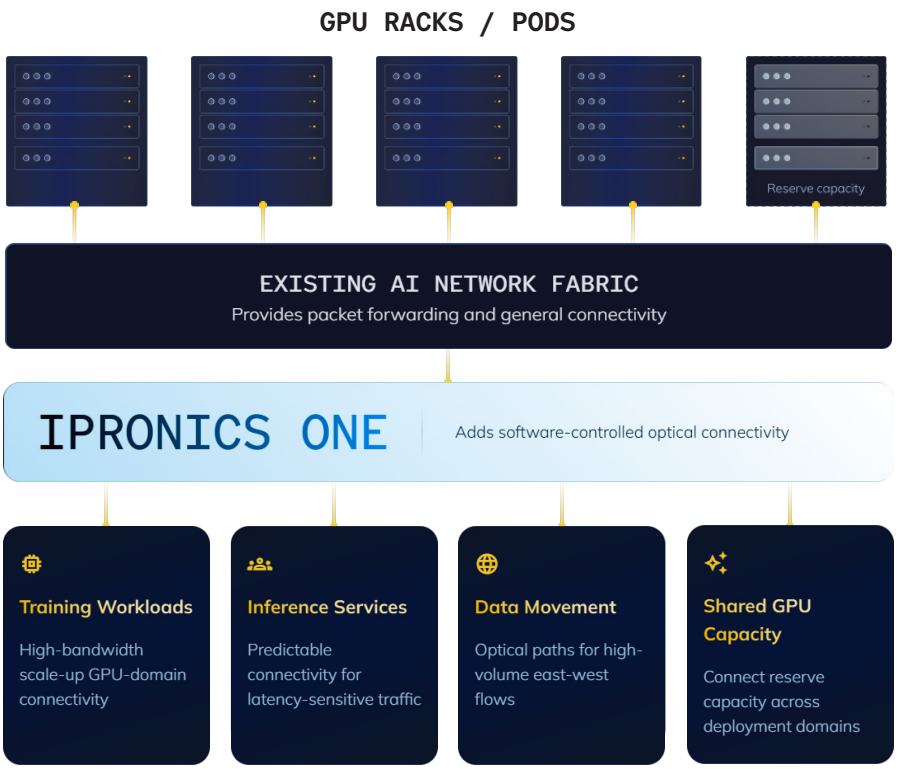
AI workloads create demanding, high-bandwidth communication between accelerator groups. Expanding these communication domains can require additional electrical switching layers, cabling, power, and operational complexity.

iPronics ONE introduces software-controlled Optical Circuit Switching (OCS) that create direct optical paths between endpoints. By reducing electrical switching stages and providing dedicated bandwidth where needed, iPronics ONE enables an AI Optical Network Fabric designed for large-scale AI systems.

## 2. Why Optical Circuit Switching?

OCS provides programmable optical connectivity with consistent path latency and predictable performance .

| Proof Point | Value |
|---|---|
| Software-Controlled | Software-Controlled |
| Fast Reconfiguration | Optical paths adapt to evolving workloads and topology needs |
| Silicon Photonics | Compact, high-density solid-state switching |
| Network Integration | Complements Ethernet and InfiniBand fabrics |



## 3. iPronics ONE Platform

iPronics ONE advances OCS for modern AI infrastructure with a rack-ready platform built on programmable silicon photonics and software-defined control.

The platform integrates high-density optical switching, gain control, telemetry, and software interfaces into a compact system architecture designed for operational deployment.

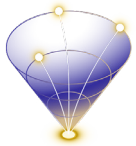
- High-density optical connectivity
- Rack-ready system platform
- Programmable silicon photonics
- Solid-state optical switching
- No moving mechanical switching components
- Integrated gain control and optical telemetry
- O-band operation
- REST APIs and orchestration interfaces


iPronics ONE brings these capabilities together in a high-density, integrated OCS platform.

## 4. Building an AI Optical Network Fabric

iPronics ONE establishes programmable optical paths across AI infrastructure, enabling an AI Optical Network Fabric with consistent path latency and software-controlled connectivity.

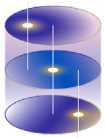
### Lead Deployment: Scale-Up AI Infrastructure



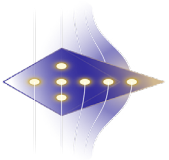
**Scale-Up**

Scale-Up is a primary deployment model for iPronics ONE, extending high-bandwidth connectivity across accelerator domains through direct, low-hop optical paths. Fewer intermediate switching stages support larger GPU communication domains

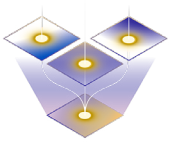
## Broader Deployment Models



**Scale-Out**
Direct optical connectivity between AI compute domains.



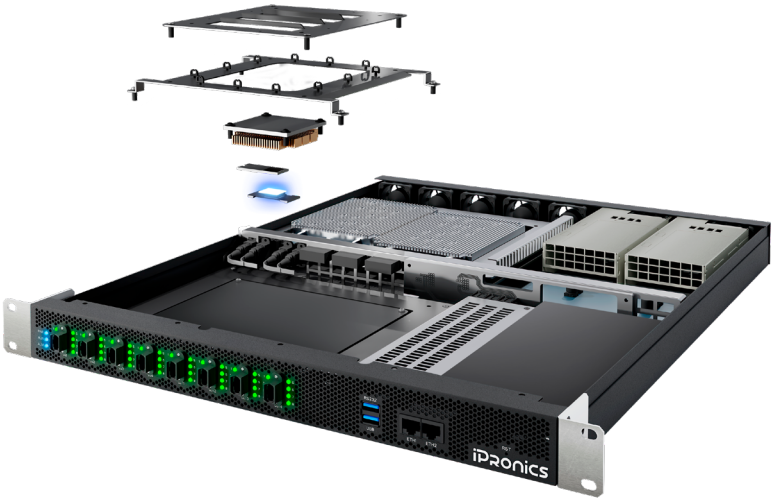
**Scale-Across**
High-volume data movement across distributed AI infrastructure.



**Shared GPU Capacity**
Connect reserve resources on demand to reduce stranded capacity

## 5. Why iPronics ONE

iPronics ONE combines programmable silicon photonics, software-defined control, gain-controlled optical paths, telemetry, and system engineering in a production-ready OCS platform. This integrated architecture brings the photonic and software elements together in a system designed for operational AI infrastructure.




## 6. Engage with iPronics

iPronics works with customers to assess infrastructure and workload requirements, identify where OCS can deliver architectural value, and develop deployment strategies aligned with technical and operational objectives.

Explore the full technical capabilities of iPronics ONE.

## Company Information

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