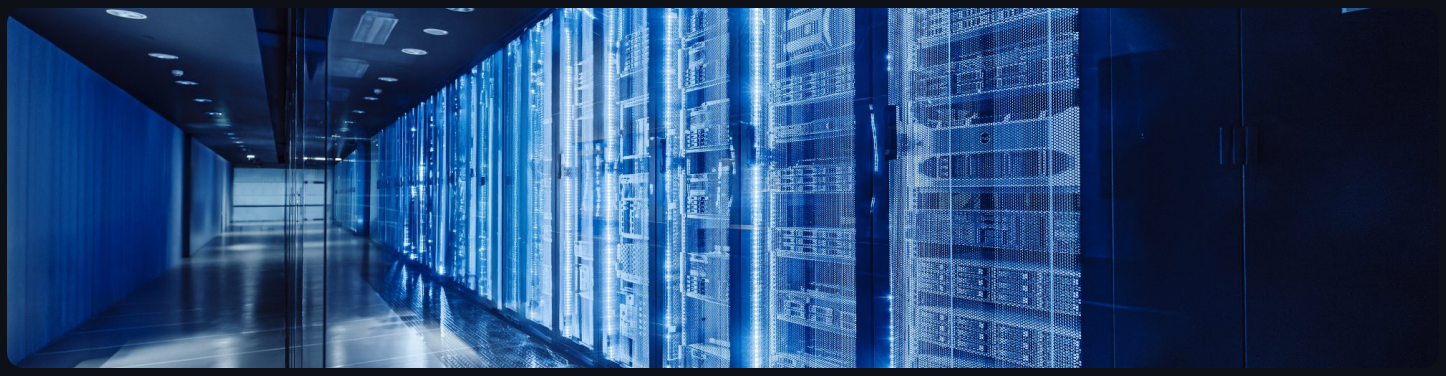

Building a Unified Data Foundation for Next-Generation Data Centers

How Phaseshift delivers a converged operational data layer spanning on-site power, DCIM, server telemetry, and building management systems for hyperscale and colocation facilities.

THE CHALLENGE

Modern data centers are converging with power generation in ways the industry has never seen. Operators managing hyperscale and colocation facilities with on-site power, whether grid-tied battery storage, backup generation, or dedicated substations, face a fundamental visibility gap. Power systems, DCIM tools, IT infrastructure, and building management each produce volumes of operational data, but that data lives in disconnected silos with incompatible protocols, separate monitoring stacks, and no unified governance.

Requirements include real-time visibility across all operational domains, historical trending for capacity planning and incident forensics, structured data feeds for third-party monitoring and compliance platforms, and authenticated API access for internal engineering and data science teams. Without a unified data layer, operators cannot correlate a cooling anomaly with a power event or trace a server performance degradation back to a BMS fault, leaving critical operational intelligence locked inside point solutions.

THE APPROACH

Phaseshift serves as the facility's converged data backbone, ingesting operational data from on-site power, DCIM systems, server infrastructure, and building management networks into a single governed private cloud environment. Rather than forcing operators to maintain separate pipelines for each domain, Phaseshift creates one controlled data layer that normalizes, governs, and distributes site data to every consumer from a single source of truth.

BRING YOUR OWN POWER INGESTION

Real-time collection from BESS, substations, generators, UPS systems, PDUs, and metering infrastructure

DCIM AND IT TELEMETRY

Ingestion of DCIM data, compute, storage, network, and GPU telemetry across racks, rows, and clusters

BMS AND FACILITY DATA

BACnet, Modbus, and protocol-native collection from HVAC, cooling, fire suppression, and access systems

API AND MULTI-STAKEHOLDER ACCESS

Governed interfaces for internal teams, OEMs, compliance, and analytics partners

THE TRUST LAYER

Data centers are increasingly classified as critical infrastructure, and the rise of on-site power generation intensifies that posture. Hyperscale and colocation facilities carry elevated expectations around cybersecurity, data governance, supply chain transparency, and vendor trust. Customers, regulators, insurers, and enterprise tenants scrutinize how operational data is collected, where it resides, and who has access.

These dynamics create real friction: slower procurement cycles, restricted remote access, limited ability to deliver the digital services that modern service agreements and SLAs demand. A trusted, domestically aligned operating partner mitigates this risk by providing a credible, secure, and governed data layer, without displacing the operator's own engineering teams, DCIM investments, or tenant relationships.

Phaseshift is an American company purpose-built for critical infrastructure data. We give hyperscale and colocation operators a way to deliver on digital, compliance, and uptime commitments while maintaining the cybersecurity posture that sensitive markets require.

THE OUTCOMES

Converged Dashboards

Unified real-time visibility across power, IT, DCIM, and facility systems in a single pane

Durable Historian

Long-term time-series retention spanning all operational domains

Power Analytics

Structured feeds to energy management, BESS analytics, and DCIM platforms

IT and Facility APIs

Authenticated access for DCIM tools, capacity planning, and data science teams

Single Secure Path

One governed data corridor from edge devices to private cloud

Cross-Domain Correlation

Unified dataset enabling power-to-cooling-to-compute root cause analysis

> ***"Data centers with on-site power are not just IT facilities: they are hybrid energy-compute environments. The operators who can see across both domains from a single data layer will define the next generation of uptime, efficiency, and resilience."***

THE COMMERCIAL VALUE

HIGHER-MARGIN COLOCATION TIERS

Unified energy and IT telemetry becomes the foundation for premium tenant services: real-time power and cooling visibility, rack-level sustainability reporting, and custom analytics feeds that differentiate colocation offerings from commodity space-and-power rentals.

CAPACITY AND UTILIZATION INTELLIGENCE

Correlated power, cooling, and compute data turns stranded capacity into recoverable capacity. Operators unlock MW-level headroom by seeing where thermal margin, power margin, and rack utilization actually diverge, deferring costly buildout and extending asset life.

REDUCED DOWNTIME EXPOSURE

Cross-domain correlation shrinks mean time to root cause on incidents that span power, cooling, and IT. Faster forensics reduces SLA credits, protects tenant relationships, and strengthens insurance and audit posture for facilities operating under uptime guarantees.

SUSTAINABILITY AND COMPLIANCE REPORTING

A governed, multi-domain dataset is the foundation for PUE, WUE, carbon intensity, and regulatory disclosures. Phaseshift makes these reports auditable, repeatable, and cheap to produce, instead of a quarterly scramble across disconnected systems and spreadsheets.

USE CASES

REAL-TIME OPERATIONS AND ALARMING

Live monitoring across power, cooling, DCIM, and IT with configurable alarm thresholds and event-driven notifications. Single operations view for NOC, facilities, and site reliability teams.

DCIM ENRICHMENT AND EXTENSION

Augments existing DCIM deployments with deeper power telemetry, protocol-native BMS data, and IT-side metrics. Extends the value of current investments without requiring rip-and-replace.

CAPACITY PLANNING AND FORECASTING

Multi-domain historical data supports rack, row, and hall-level capacity models, power availability forecasts, and cooling headroom analysis to optimize deployment decisions and defer buildout.

ANALYTICS AND AI ENABLEMENT

Clean, normalized operational data piped directly into the operator's optimization models, anomaly detection systems, data science notebooks, and emerging AI workflows.

BYO POWER INTEGRATION

Unifies operational data from on-site BESS, generators, substations, and grid-tied assets with facility and IT systems, eliminating the visibility gap between energy infrastructure and compute operations.

TENANT AND STAKEHOLDER ACCESS

Governed data sharing and reporting interfaces for tenants, OEMs, lenders, independent engineers, and compliance auditors without exposing the operator's proprietary operational analytics.

THE INTELLIGENCE LAYER

Phaseshift goes beyond passive data collection. The platform is self-governing and autonomous, correlating, reasoning, and acting on operational data across the full facility stack.

AUTONOMOUS CROSS-DOMAIN CORRELATION

Continuously correlates power draw, thermal behavior, airflow, and compute load to surface relationships invisible to single-domain monitoring. Links a rising inlet temp to an upstream UPS event or a GPU cluster spike without human query.

PROACTIVE ANOMALY DETECTION

Behavioral baselines across BESS, cooling, and IT detect early drift, thermal runaway precursors, and power quality anomalies before they cascade into incidents. Flags issues at the domain boundary, where traditional tools go blind.

SELF-GOVERNING DATA PIPELINES

Ingestion flows adapt automatically as new halls commission, DCIM configurations change, rack deployments shift, or on-site power assets expand. No manual pipeline rebuild for every facility change.

PREDICTIVE CAPACITY INTELLIGENCE

Correlates utilization trajectories, thermal envelopes, and power availability to forecast stranded capacity, deployment risk, and infrastructure constraints before they impact tenant onboarding or SLA commitments.

THE VALUE

Every data center operator with on-site power will eventually need a converged data platform. The question is whether to build it piecemeal across halls, vendors, and DCIM deployments, or to adopt a proven, hardware-agnostic layer purpose-built for hybrid energy-compute facilities. Phaseshift eliminates the integration tax, accelerates multi-domain observability, and delivers the secure, governed posture that hyperscale and colocation customers increasingly demand.

Phaseshift is not a replacement for DCIM, EMS, or BMS. It is the operational data backbone that makes them work together at facility and fleet scale.

Ready to build your unified data foundation? www.phaseshiftdata.com