Belden

Data Center Space Optimization

Application Brief

Address capacity constraints and accelerate deployment with infrastructure optimization

Maximize production capacity without expanding your footprint

The explosive growth of AI and cloud computing demands unprecedented data center capacity. Yet supply chain challenges and power constraints create bottlenecks. In brownfield facilities where expansion isn't an option, infrastructure optimization unlocks hidden production potential. In both greenfield and brownfield instances it can increase your speed to deployment by right sizing your support infrastructure.

The infrastructure challenge

Traditional data center design allocates substantial space to IDF and telecom rooms — non-revenue generating infrastructure that consumes valuable real estate.

With the rapid evolution of AI and HPC technologies, core telecommunications requirements have become vastly divergent from building and facilities operations. Building support infrastructure to the same capability as production systems wastes capital and space.

With data center investment contributing over 90%[2] of US GDP growth and construction costs impacted by 50%[3] due to supply chain issues, every square foot must drive value.

Belden's infrastructure optimization solution focuses on:

Capital and operational efficiency

Right-sizing infrastructure eliminates over-provisioning and reclaims production space.

Resource optimization

Simplified infrastructure design reduces points of administration for support systems.

Speed to market

Modular designs can be prepared off-site and ship pre-configured, reducing on-site time commitments.

Comprehensive infrastructure design for the core, shell and campus systems

Belden delivers integrated infrastructure solutions that span all four critical domains—telecommunications, electrical, architectural, and mechanical—eliminating traditional IDF rooms while maintaining full functionality.

White space optimization

- Right-sized for core production requirements
- Eliminates overbuilding of support systems infrastructure

Admin areas consolidation

- Voice, data, command and control systems
- Distributed without dedicated telecom rooms

Facilities infrastructure

- Control systems for Power and Cooling
- Standardized platforms for monitoring, coordination, and predictive maintenance

Facilities management systems

- Yard monitoring, command and control
- Integrated security and access control

Data center efficiency imperative

69% Increase in average rack density in one year[1]

92% Of US GDP growth driven by Data Center investments[2]

50% Construction cost impact from supply chain[3]

30-40% Of electricity consumed by cooling[4]

1. AFCOM State of Data Center 2026 Study;
2. CRE Daily, 2025;
3. Foley Report, 2026;
4. Bloom Energy, 2024

Maximizing data center efficiency

The challenge

Data centers face unprecedented pressures with investment driving 92%[5] of US GDP growth, supply chain issues impacting construction costs by 50%[6], and cooling consuming 30-40% of total electricity[7].

Belden's approach delivers*

- Elimination of dedicated IDF rooms, reclaiming space for production infrastructure
- Right-sized support systems that enable higher cabinet density
- Reduced power and cooling burden for non-core infrastructure
- Simplified management with fewer administration points

*Specific outcomes vary by facility
5. CRE Daily, 2025;
6. Foley Report, 2026 ;
7. Bloom Energy, 2024

How it works

Ground-up infrastructure reimagination

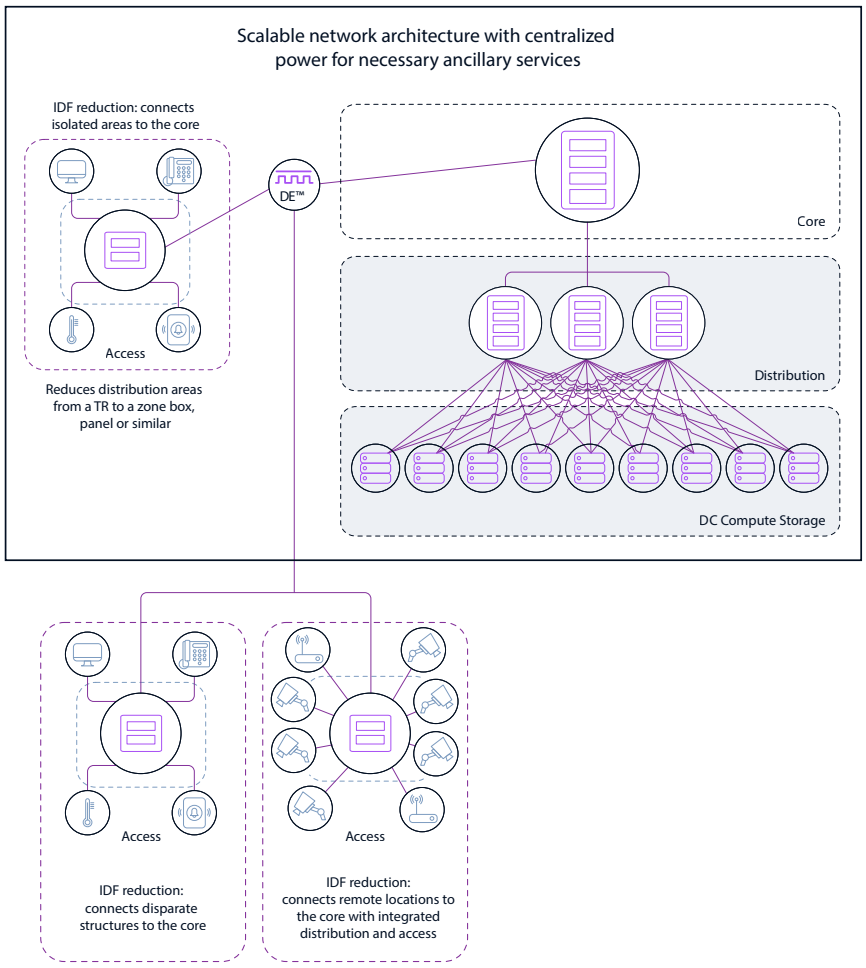
Belden's approach enables device locations where they are needed through right-sizing and configuration of infrastructure based on requirements. This eliminates over-provisioning of non-core technologies while ensuring core production systems have the resources they need.

Modular design for rapid deployment

Standardized configuration enables repeatable deployment at scale. Panels can be manufactured off-site and ship fully configured and verified, reducing on-site commissioning time. Modular design supports future growth and adaptation based on availability.

Vendor-agnostic compatibility

Support for various control systems ensures flexibility and protects existing investments. Solution works across multi-vendor environments including Hirschmann, Lumberg, Macmon, CloudRail, ProSoft and more. The application extends beyond building and facility systems to outside plant (OSP) applications including security, monitoring, access control and yard systems.



Proven in demanding environments

- Cloud and hyperscale operators: Speed to market and scalability requirements demand rapid deployment
- Multi-tenant data center providers: Edge deployments and brownfield optimizations require flexible infrastructure
- Enterprise data centers: Data-intensive operations benefit from simplified infrastructure management
- Campus operations: Outside plant (OSP) applications including security, monitoring, access control, and yard systems benefit from unified infrastructure approach

Connect to what's possible.

Application Brief

About Belden

Belden Inc. delivers complete connection solutions that unlock untold possibilities for our customers, their customers and the world. We advance ideas and technologies that enable a safer, smarter and more prosperous future. Throughout our 120+ year history we have evolved as a company, but our purpose remains – making connections. By connecting people, information and ideas, we make it possible. We are headquartered in St. Louis and have manufacturing capabilities in North America, Europe, Asia and Africa.

For more information, visit us at:
belden.com/datacenters

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Ready to maximize your production capacity?

Contact us to schedule an infrastructure optimization assessment and calculate your space reclamation potential.

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