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The hospitality network modernisation guide

Future-ready hospitality starts with the right network foundation

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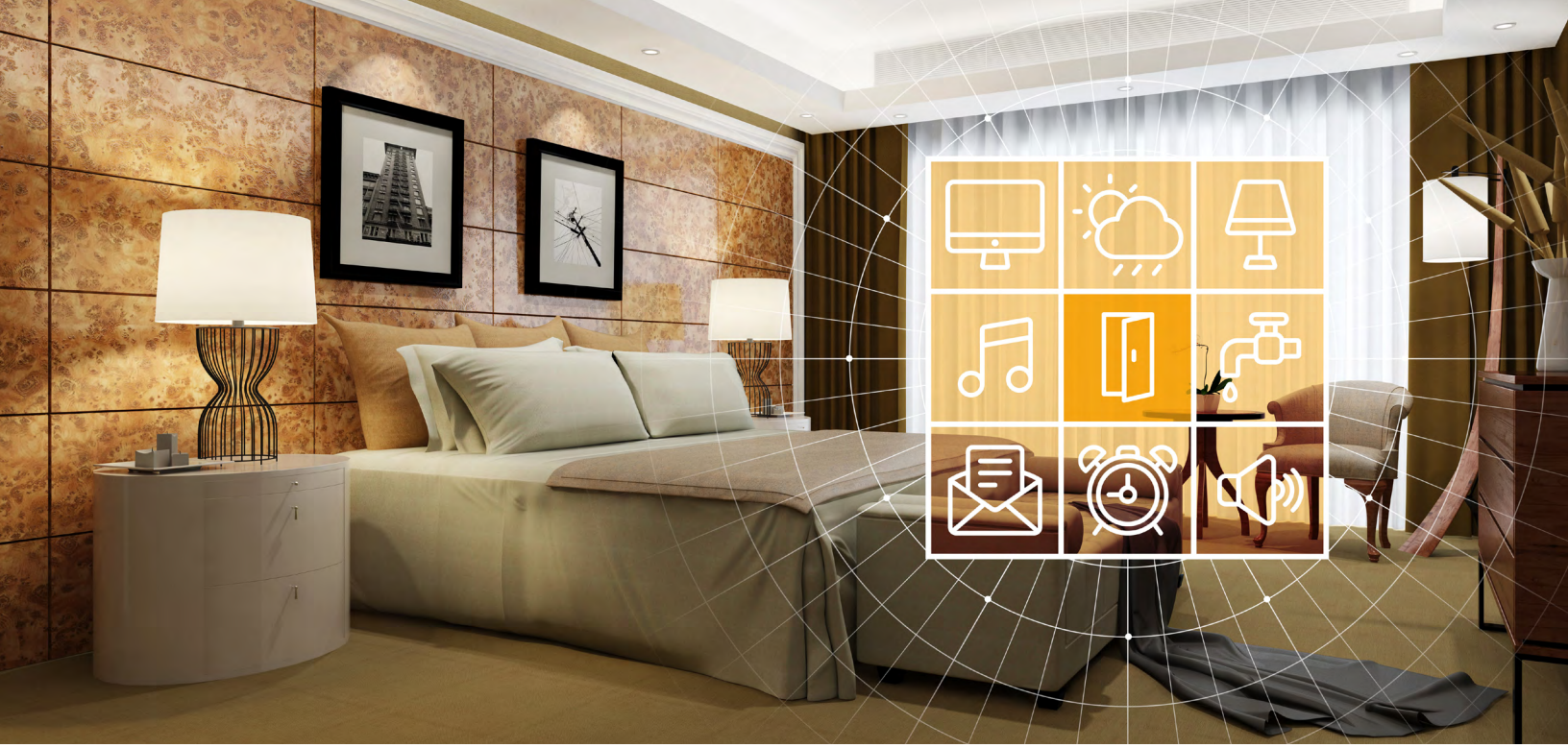
Common challenges in modernisation

Many hospitality projects encounter similar challenges when implementing new technologies.

- **Adding new technologies without infrastructure alignment** creates inefficiencies and limits the effectiveness of investments.
- **Designing for current needs only** leads to higher costs and complexity down the line.
- **Managing multiple vendors and systems** compounds the problem, with a lack of integration increasing operational overhead and reducing efficiency.
- As more devices come online, **increasing network complexity** challenges traditional designs that weren't built for today's device counts.

Key takeaway

Addressing these challenges requires a strategic and integrated approach to infrastructure design.



What this enables for hospitality leaders

Recognising these challenges is the starting point. The more useful question is what becomes possible once you've addressed them. A modern infrastructure foundation enables several outcomes across the hotel.

- Faster deployment of new guest experiences comes from a flexible infrastructure that allows quick introduction of new services and technologies.
- Improved operational efficiency follows from integrated systems that reduce manual effort and streamline workflows.
- Reduced long-term costs come from efficient, scalable design that lowers maintenance and upgrade spend over time.
- Better use of data is the result of integration that turns operational signals into meaningful insights.
- Enhanced system reliability underpins everything, reducing downtime and ensuring consistent performance.

Key takeaway

Infrastructure investments directly impact both guest experience and overall business performance.

A practical path to modernisation

A vision of what's possible only matters if there's a credible way to get there. Modernising hospitality infrastructure works best as a structured, phased approach rather than a single transformation event.

Key steps include:

- **Assessing current infrastructure**
  Identifying gaps, inefficiencies and opportunities for improvement.
- **Align with business objectives**
  Ensure infrastructure decisions support long-term goals and strategy.
- **Design scalable solutions**
  Develop architecture that supports future growth and integration.
- **Validate performance**
  Test solutions to ensure they meet operational requirements.
- **Deploy and optimise**
  Implement solutions and continuously refine performance over time.



Key takeaway

A structured approach reduces risk and ensures alignment with organisational goals.

The hospitality infrastructure maturity model

Before walking that path, it helps to know where you're starting from. Hospitality infrastructure maturity can be understood across five levels, each reflecting a different degree of integration and capability.

Level 1: Basic

Standalone systems with minimal connectivity, often leading to manual processes and limited scalability.

Level 2: Digitised

Introduction of digital tools such as Wi-Fi and PMS, but systems operate independently without integration.

Level 3: Integrated

Front-of-house and back-of-house systems begin to connect, enabling improved coordination and service delivery.

Level 4: Data-driven

Data from multiple systems is analysed to enhance guest experiences, optimise operations and support decision-making.

Level 5: Future-ready

Fully converged infrastructure supports scalability, automation and continuous adoption of new technologies.

Key takeaway

Progressing through these levels enables organisations to unlock greater efficiency, personalisation and long-term adaptability.

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From fragmented to future-ready

Wherever you sit on the maturity curve, the direction of travel is the same: moving from fragmented systems to a future-ready foundation. Traditional hospitality environments often evolve in pieces over time, leaving operators with disconnected systems that are difficult to manage and scale.



Traditional environment characteristics:

- **Disconnected systems across IT, OT and IoT**
  Guest networks, operational networks, building automation and IoT devices often run on separate stacks, increasing complexity and management overhead.
- **Reactive maintenance approaches**
  Issues are addressed after they occur, leading to potential service disruptions and increased operational costs.
- **Limited scalability**
  Adding new devices or services often requires significant redesign and investment.
- **Manual processes**
  Operational workflows rely heavily on human intervention, reducing efficiency and consistency.

Key takeaway

Transitioning to a unified infrastructure model enables more resilient, efficient and adaptable hospitality environments.

Future-ready environment characteristics:

- **Converged network infrastructure**
  A single, well-segmented network supports IT, OT and IoT systems on shared infrastructure, simplifying management and reducing duplicated effort.
- **Predictive maintenance capabilities**
  Sensors and analytics enable proactive identification of issues, improving reliability and reducing downtime.
- **Scalable architecture**
  Infrastructure supports growth in devices, services and technologies without major redesign.
- **Automated operations**
  Data-driven systems enable automation, improving efficiency and freeing staff to focus on guest engagement.

Overcome modernisation challenges with a future-ready hotel architecture



Future-ready architecture in a hospitality environment connects every component of the property through a unified, scalable network. Here's what that looks like in practice.

Core components include:

- **Guest rooms and smart devices**
  Rooms equipped with connected systems such as lighting, temperature control and entertainment that respond to guest preferences.
- **Public spaces and wireless connectivity**
  High-density areas require consistent and high-speed connectivity to support large volumes of users and devices.
- **Operational systems and staff tools**
  Systems that support housekeeping, maintenance and service delivery must operate reliably and in real time.
- **Security and surveillance systems**
  Integrated systems provide continuous monitoring and ensure safety across the property.

Infrastructure requirements:

- **Power and data delivery across all environments**
  Infrastructure must support both connectivity and power distribution to devices in diverse locations.
- **High device density support**
  Networks must handle increasing numbers of connected devices without compromising performance.
- **Seamless integration of new technologies**
  Infrastructure should allow new systems to be added without disrupting existing operations.

Key takeaway

A connected and scalable architecture ensures consistent performance and supports long-term growth.

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Scale without complexity

Good architecture only earns its keep when it scales. As guest counts, properties and connected devices grow, the network has to grow with them without growing harder to manage. Traditional designs struggle on both counts.

Converged network approach:

- **Unified network across IT, OT and IoT**
  Guest and operational networks, building automation and IoT devices share a single, well-segmented infrastructure, reducing duplicated effort and giving teams a single source of operational visibility.

- **Centralised management**
  A unified infrastructure allows for streamlined monitoring, troubleshooting and optimisation.



Optical LAN advantages
Fibre-based architecture reinforces these benefits. It reduces infrastructure complexity by minimising the need for extensive cabling and network equipment, supports long distances without signal degradation (which makes it well-suited to large properties) and lowers power consumption while freeing up physical space.

Key takeaway

Converged and optical network architectures simplify operations and provide a strong foundation for future expansion.

Empowering the modern hotel

Connectivity is only half the equation. Every connected device, from access points and cameras to displays, sensors and locks, also needs reliable power. As those devices multiply across the property, power distribution becomes a planning question on equal footing with connectivity.

Modern power requirements:

- **Support for IoT and connected devices**
  Devices such as sensors, cameras and smart controls require consistent and efficient power delivery.

- **Flexible deployment across environments**
  Power must be delivered to locations where traditional electrical systems may not be easily accessible.

Fault managed power capabilities

Fault managed power adds another layer of capability. It enables safe power delivery over long distances, supporting distribution across large properties without compromising safety. It reduces reliance on traditional electrical infrastructure, simplifying installation and allowing more flexibility in design. And because it aligns power and data delivery, it supports integrated connected technologies more effectively.

Key takeaway

Efficient power distribution enables greater flexibility and supports the deployment of modern hospitality technologies.

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Data-driven operations and security

Once the network and power are in place, the value sits in what the infrastructure makes possible. As hospitality environments become more connected, the volume and importance of operational data increase significantly, alongside the responsibility to protect them.

Data-driven capabilities

On the data side, the infrastructure enables guest personalisation, using preference and behaviour data to tailor experiences and improve satisfaction. It also delivers operational insights that support better forecasting, staffing and resource allocation.

Security considerations

Security travels alongside data. Guest and operational information must be protected to maintain trust and compliance. Beyond protection, systems must detect and respond to potential threats in real time to minimise impact when they occur.

Operational continuity

Reliability is the foundation underneath both. Infrastructure must ensure consistent availability to support guest services and operations, and it must handle peak usage without degradation in performance.

Key takeaway

Secure and reliable infrastructure supports both guests' trust and operational effectiveness.



The role of a trusted infrastructure partner

Infrastructure at this scale isn't a one-time project. It's an ongoing relationship, which is why the choice of partner matters as much as the technology itself. Managing multiple systems and vendors on your own can increase both complexity and risk.

A single infrastructure partner brings several practical benefits.

- Aligned design and implementation ensures systems work together from the outset.
- Simplified project management reduces coordination challenges and improves efficiency.
- Consistent support and optimisation provides ongoing expertise and protects long-term performance.
- Scalable, future-ready solutions support growth and evolving requirements without disruption.



Key takeaway

A unified partnership approach enables more efficient and effective modernisation.

Connect to what's possible.



Future-ready hospitality starts with the right network foundation

For hospitality leaders planning the next phase of growth, modernisation or expansion, this is an opportunity to build with greater clarity.

Not just by selecting technologies, but by establishing a foundation that allows those technologies to work together effectively.

How Belden helps leading hospitality players

Belden works with hospitality organisations to design and deliver network infrastructures that support this level of integration, scalability and performance.

By aligning infrastructure with long-term business objectives, organisations can create environments that are not only ready for today's expectations but prepared for what comes next.

Ready to build infrastructure that's prepared for what comes next?

Book a consultation with our hospitality expert today

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