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Smart Buildings Show.

EXCEL EXHIBITION CENTRE – STRUCTURED CABLING INFRASTRUCTURE UPGRADE.

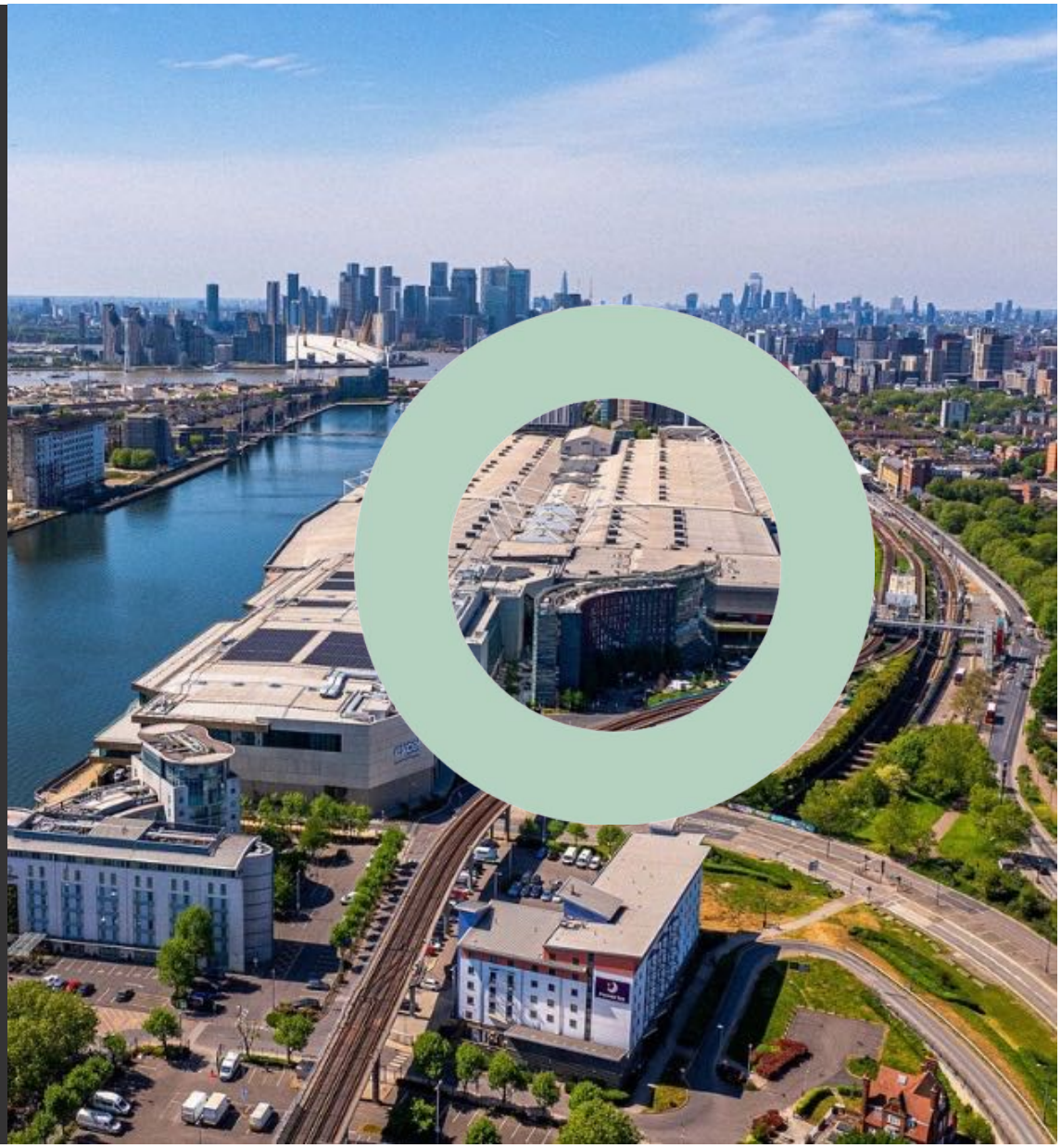
CURRENT STATE, CUSTOMER EXPERIENCE & ROADMAP TO 10GBPS.



Magnus Leask
Head of Digital Solutions
Hoare Lea



Simon Callow
Head of Technology
Excel Exhibition Centre



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Digital Solutions.

ICT

Audiovisual Visual

Smart

BMS

Cyber Security

Building a resilient, high-performance infrastructure

for the next generation of events.



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Key Facts About Excel.

Excel is no longer simply an exhibition venue – It's a highly connected, technology dependent event campus.

Operationally, the site behaves like a campus: long east-west distances, high footfall, and event-by-event network demand.

Infrastructure design must support short setup windows, high-density wireless, mobile coverage, and VIP/event-critical services.

- Opened in November 2000 in London's Royal Docks.
- Currently approximately 125,000 sqm following the 2025 expansion.
- Hosts 400+ events per year and around 4 million visitors.
- The 2025 expansion added 25,000 sqm, increasing the venue footprint by 25%.
- Europe's largest fully integrated conference and exhibition centre
- Contributing approximately £4.6bn annually to London's economy.

125,000 sqm

Total conference & exhibition capacity after the 25,000 sqm expansion

400+

Events hosted annually across the venue and destination district

4 million

Visitors a year; demand expected to rise as the venue expands

3 DLR

Onsite DLR stations; strong London City Airport and Elizabeth line access





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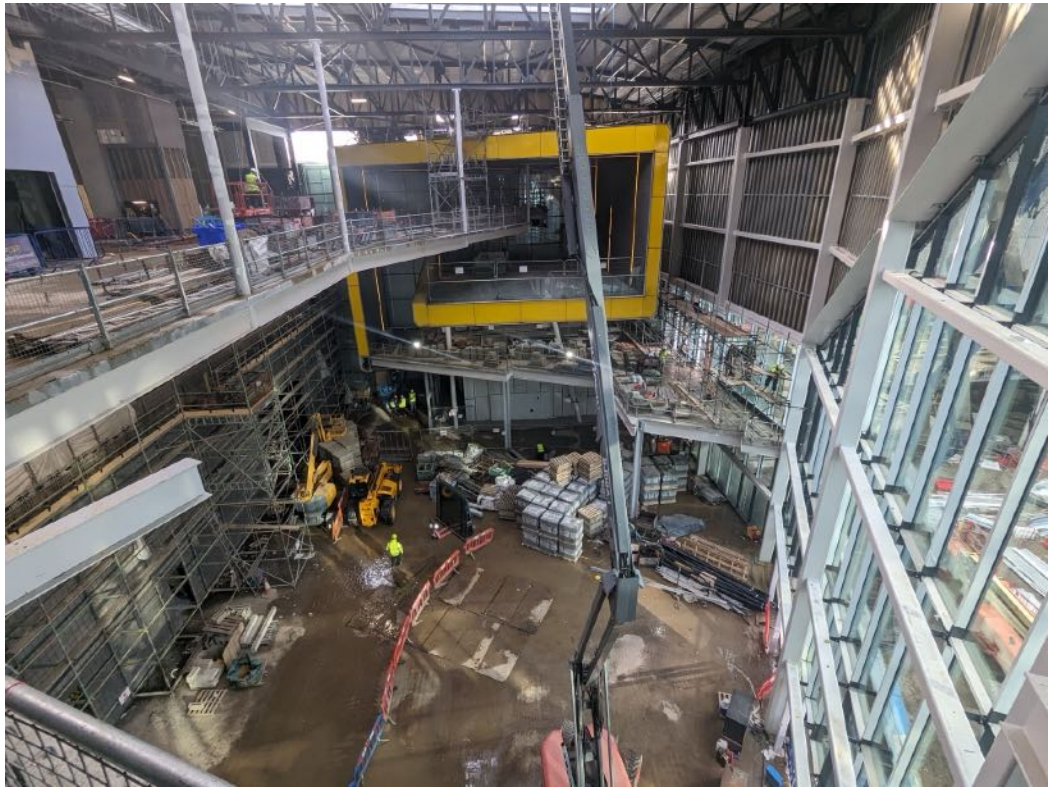
The Evolution of Excel's Infrastructure.

The infrastructure is effectively a 25-year technology journey, with different generations of building fabric and network infrastructure now operating alongside one another.

Opened in November 2000 in London's Royal Docks.

- **Phase 1** — Original venue | Opened in 2000 | Infrastructure designed around the technology and connectivity requirements of the early 2000s | Large physical footprint created significant cable-distance challenges.
- **Phase 2** — ICC / expansion | Construction began in 2008 | Officially opened in 2010 | Added approximately 35,000 sqm of event space plus the International Convention Centre.
- **Phase 3** — ICC Expansion | Developed from 2021 onwards | Opened in 2025 | Adds a further 25,000 sqm | Designed as a modern, state-of-the-art extension.

Phase 1 (2000) → Phase 2 (2010) → Phase 3 (2025)



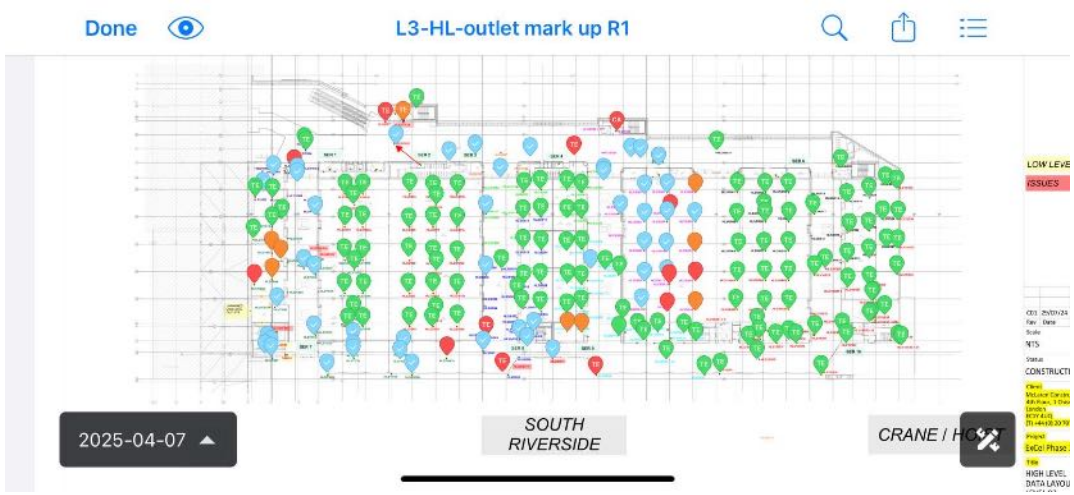
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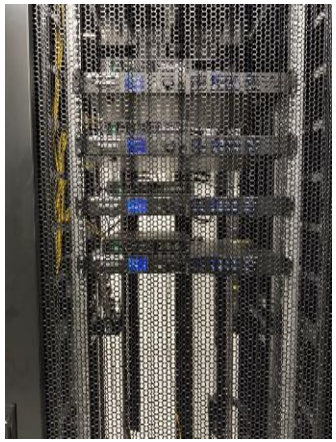
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Current Infrastructure.

Broad Overview.

- Predominantly Cat 5e & 6 horizontal cabling.
- Two main MERs providing the principal network distribution.
- Fibre backbone connecting the core / MER infrastructure to the SERs.
- Internet capacity entering the campus and distributed through the existing network architecture, supporting several Operational Packages.
- Large physical distances between network rooms and customer connection points, pushing the limits of a 90m rule Copper Network.
- Newer Phase 3 infrastructure provides an opportunity to establish a more modern reference architecture, which then needed to be realised back into Phase 1 & 2.







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Why the Current Infrastructure is becoming a Constraint.

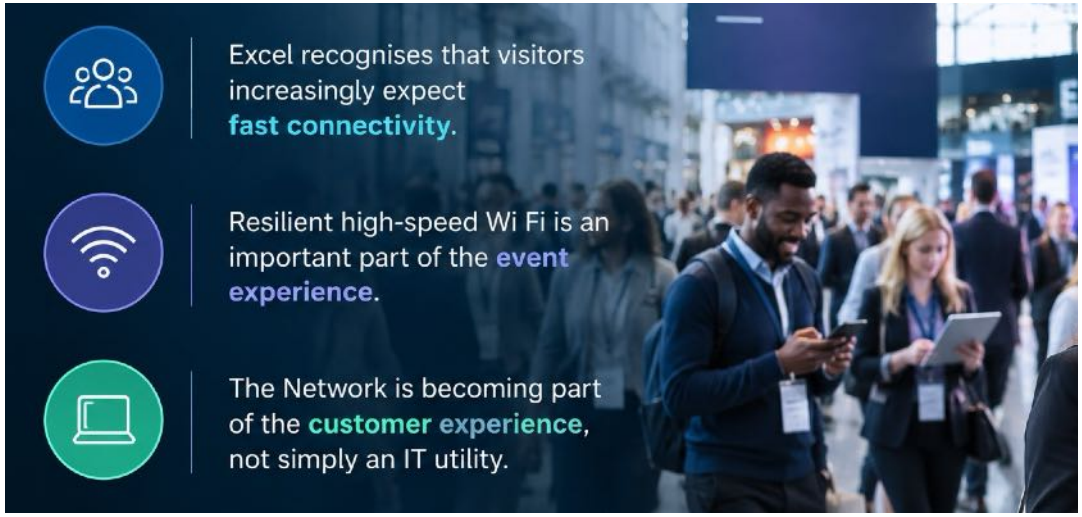
The customer expectation has changed faster than the original building infrastructure.

Original Design

- PCs and basic internet access with Lower-bandwidth applications.
- Fewer concurrent devices with Predominantly wired connectivity.

Installed & In Progress Design

- High-definition video & Cloud applications.
- Teams/Zoom and live collaboration.
- High-density Wi Fi with Streaming and content production.
- Large exhibitor deployments with IoT and connected event infrastructure.
- Increasing demand for multi-gigabit connectivity.



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Focusing upon 10Gbps to the Edge.

Why 10Gbps at the edge changes the design rules.

Channel length and crosstalk become gating factors.

Cat 6

typ. ≤55m for 10G in design

100m

Cat 6A

designed for 10G channels up to 100m



Length

Ensuring strict 90m rule from Infrastructure Point

Bundles

Cable Tray Management to prevent cross talk & shielded cables

PoE Heat

Access Points, Cameras & IoT Increase Thermal Stress

Patching

Legacy terminations reduce margin

Documentation

Smart Port Recording Software & Fault Tracking

E.g. Field Wire

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Infrastructure Upgrade Roadmap – E.g. Wi Fi 7 Roll Out.

Mini SER's – Bringing the Network Closer to the Edge.

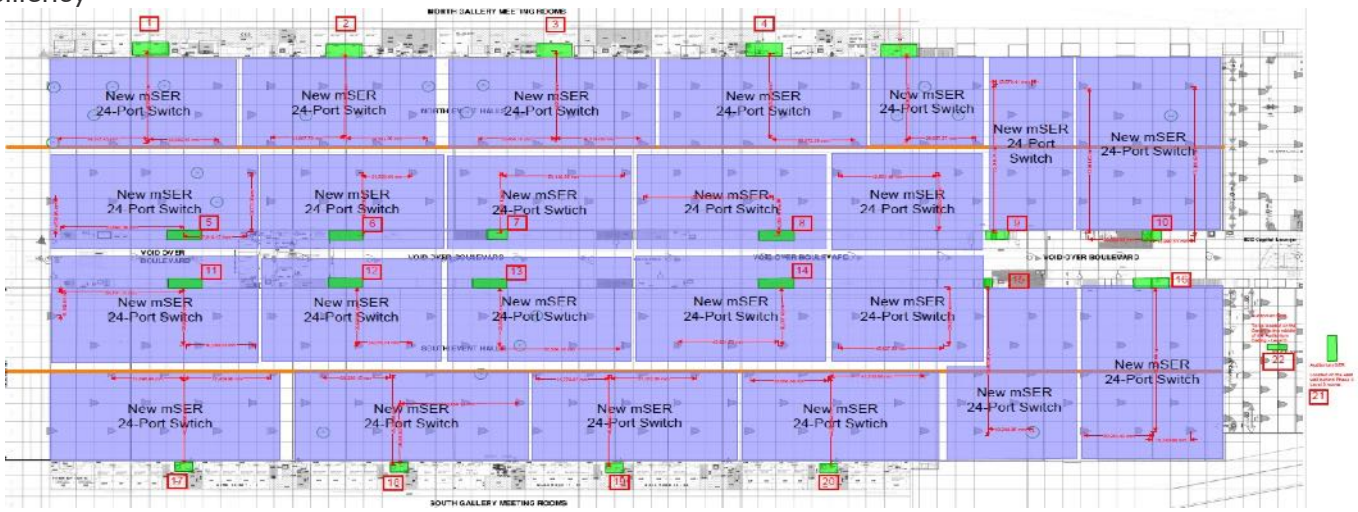
Program Management – Delivery in a Live Venue

Survey & Model	Mini – SER Locations	Fibre Backbone & Power	Cat 6a Outlets	Installation	End Point Package Connect
Establish Current Cable Lengths	Establish Locations for Mini SER's	Build Connectivity & Resiliency	Establish Outlet Locations	Installation within a Live Venue	Package Management & Switch Over

Next Generation Connectivity – Wi Fi 7

"Excel has invested more than £6 million in upgrading its connectivity infrastructure, introducing venue-wide Wi Fi 7 capability alongside enhanced 5G mobile coverage.

Designed to support the growing demands of exhibitions, conferences and live events, these upgrades provide faster speeds, greater capacity and improved reliability across the venue.



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Service packages enabled by the upgraded platform.



5G Mobile Boosting Solution

Improving the Mobile Experience in High-Density Scenarios and delivering a fast user experience.

Requires power, fiber & backhaul, antenna locations and operational permissions.

Wi Fi 7 Upgrade

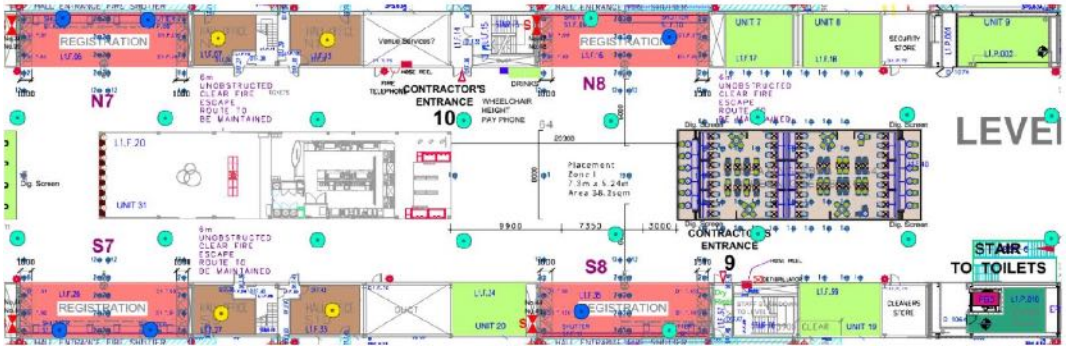
Delivering a 10Gbps to the Edge – Wi Fi 7 Cisco Solution, offering 6Ghz functionality, to allow Excel to move forward with an enhanced solution. Some 1200 Access Points have been installed.

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Cisco – Wi Fi 7 - Deployment

Excel	Sponsor | Strategy | Venue Knowledge | Cross Package Project Management
Cisco	Professional Services | Cisco Certified Design | Bill of Materials
Natilik	Professional Services | Project Management | Active Design
Hoare Lea	Tender Management | Passive Network Design | Technical Review
AMP	Passive Package Delivery
N&F	Passive Package Delivery



Believed to currently be No. 1 Cisco Wi Fi 7 Project in the World.

Some 1200 Wi Fi 7 Access Points Deployed. Rising to 1500.

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Cisco – Wi Fi 7 – Capacity Planning

Venue Capacity
100,000 People

Gold Design
60,000 Users

Estimated 2 devices per User

120,000 Devices

10Gbps to the Edge

Custom SSID Solutions for Clients

Future plans for Expansion of Solution

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Preparing for Challenges

Implementation Challenges

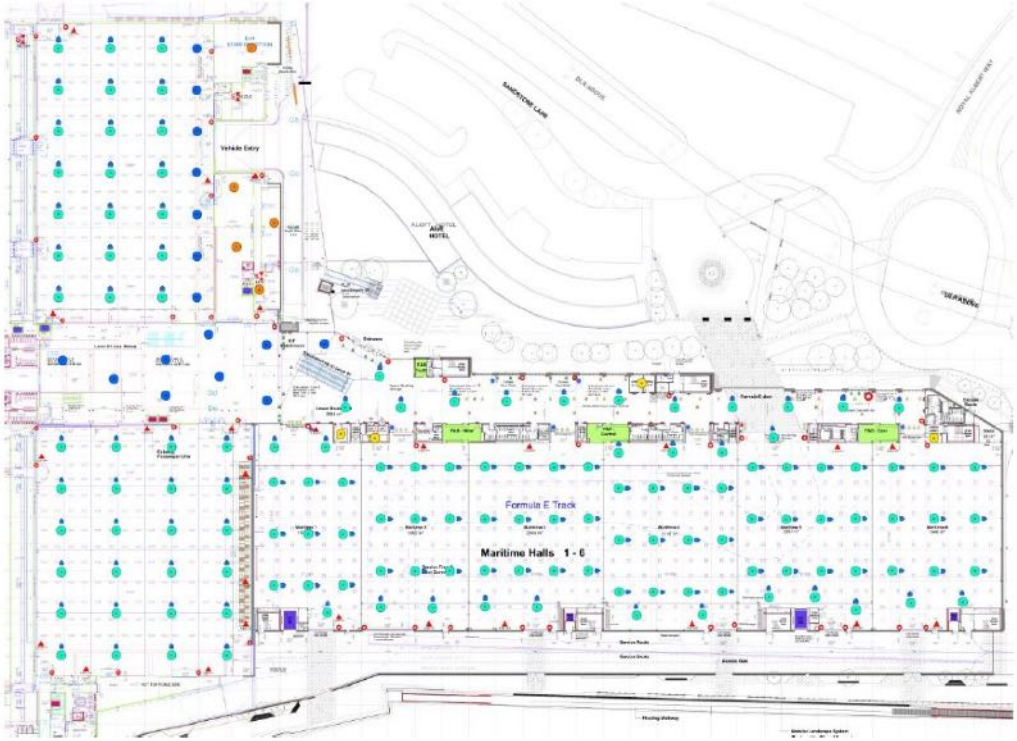
- Delivery of a complete new structured cabling solution within a live venue. Significant coordination with Events.
- Latest Cisco equipment was not available when the project started, so limited familiarity.

Considerations

- Original Ruckus Wi Fi Solution, maintained within the Venue, allowing for the ability to be able to swap between the Cisco Solution and the Ruckus solution.
- Allowing for the creation of a warm roll out plan to support.

Implementation Challenges

- SSID configuration and testing – Aligning solutions.
- Bluecat | Purple Wi Fi | Cisco Tools.



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Summary & Conclusions

The Venue is Scaling

Excel's expanded footprint and event demand make connectivity a customer-experience differentiator.

Wi Fi 7 & 5G Deployed

Excel's moves forward with both a modern Wi Fi 7 & 5G Solution Deployed.

Modern Passive Network Infrastructure

Continuing to remove Cat 5e & 6 infrastructure moving to a Cat 6a – 10Gbps to the edge capable network.

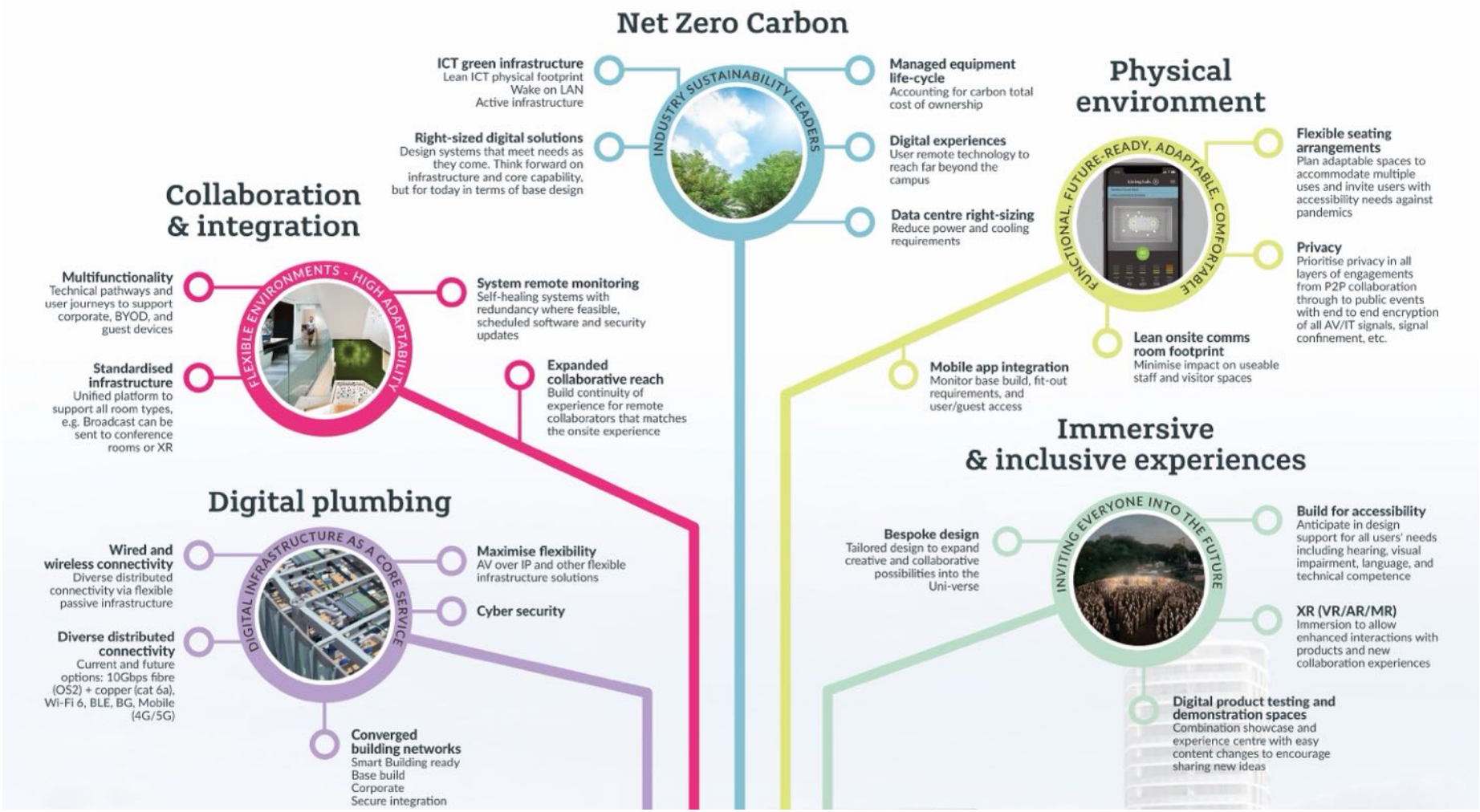
Active Network Considerations

Creating the Cyber Secure Digital Plumbing, that glues together all Base Build and Overlay Packages.



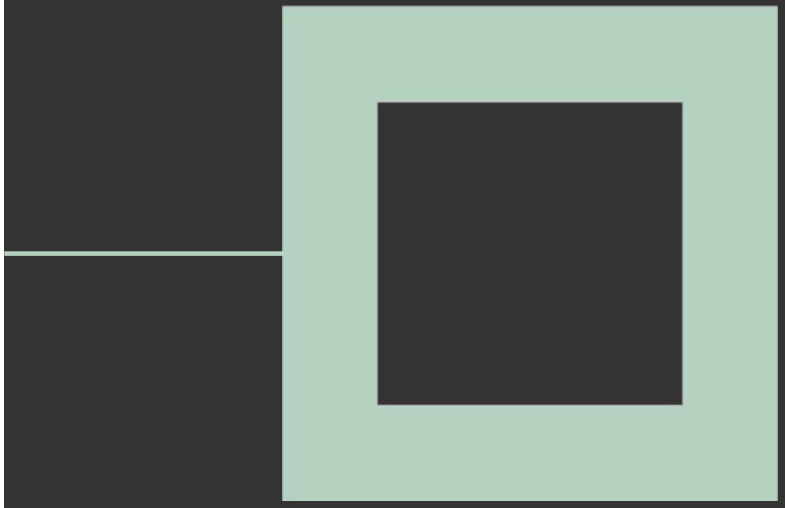
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Thank you.

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