

Smart Building Operations with BIM

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About the speaker

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A technical expert with extensive experience in software design and development, integrated solutions across SCADA, ERP, BIM and Cloud Services, in the fields of facility and infrastructure management, industry automation, BIM and enterprise software integration especially in the areas of smart workplace, smart cities, Internet of Things and mobility. Inventor of patented technologies.

Smart Building Operations with BIM

- Closer look at Building Operations
- Technology – Platforms and Components
- Limitations of Technology and the Opportunity
- iViva Smart BIM as example solution

Closer look at Operations



Conventional Building Operations

- Performed by specialized staff who often sit in control room
- Service goals
 - Hygiene & life safety
 - Housekeeping, security checks
 - Comfort
 - Temperature, air quality
 - Optimize assets usage and lifespan
 - Maintenance, insurance
 - Optimize space utilization
 - Reduction of energy waste

Operations that make building Smart

- Living environment is part of organizational branding
- Expanded Service Goals
 - Comfort, life safety & security – enhance without compromising each other
 - Sustainability – as organizational branding
- Enabling Citizen Integrator
- Topics discussed at the boardroom
- Higher budget – no longer limited to cost saving

Challenge - Systems Redefined

- Operations are not silo-specific
 - Operating sequences will cross silos
- Higher level abstraction of operations
 - Hide implementation details
- Operating scope with dynamic boundary
 - Dynamic team formation
 - Operators with multiple roles

Operator Redefined

- Unclear expectations
 - Don't ask me but show me options to choose from
- Higher visual impact
 - Less reading involved
- Expectation of location awareness
- Acceptance of fuzziness
 - Don't expect systems to be 100% accurate

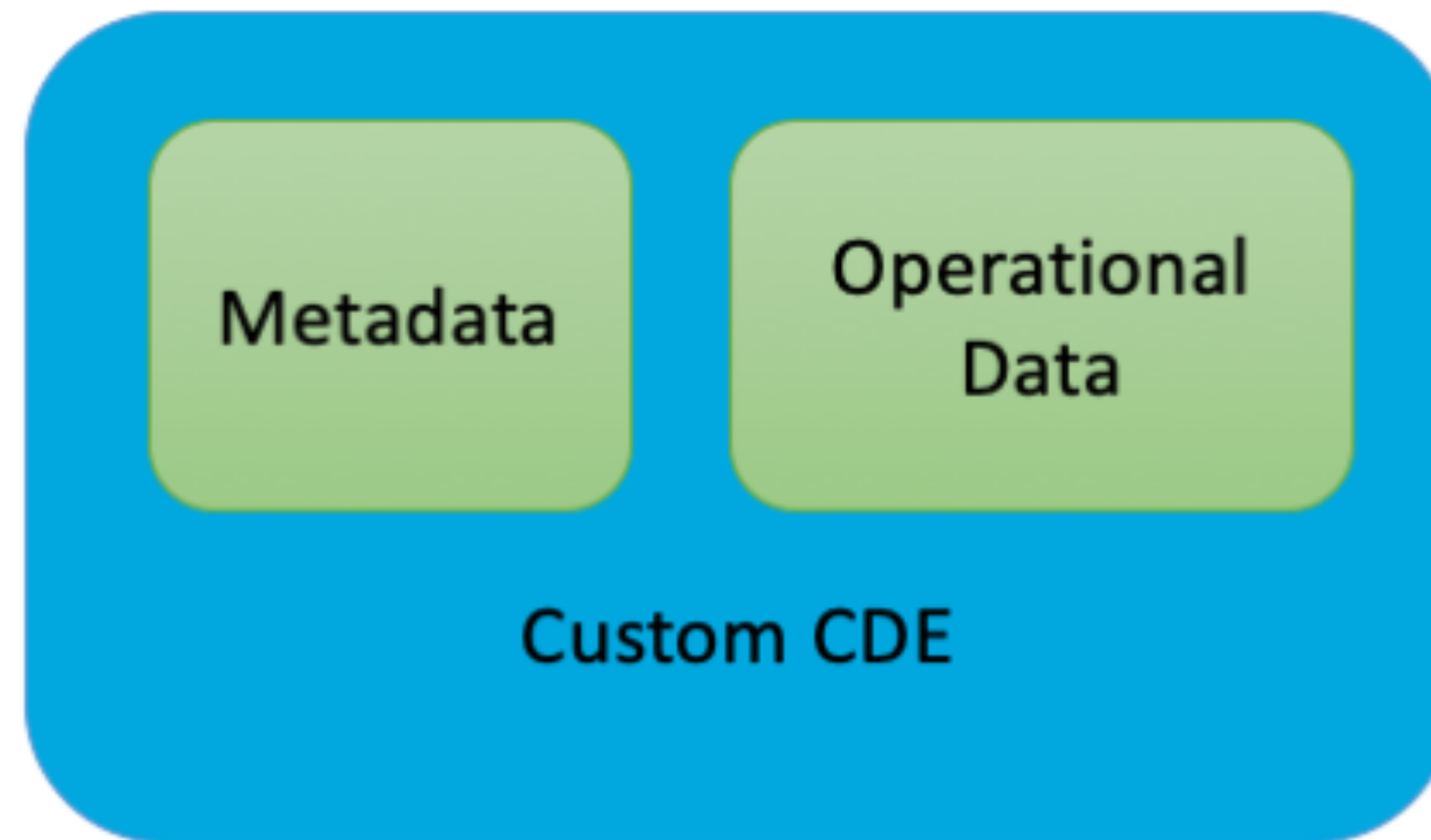
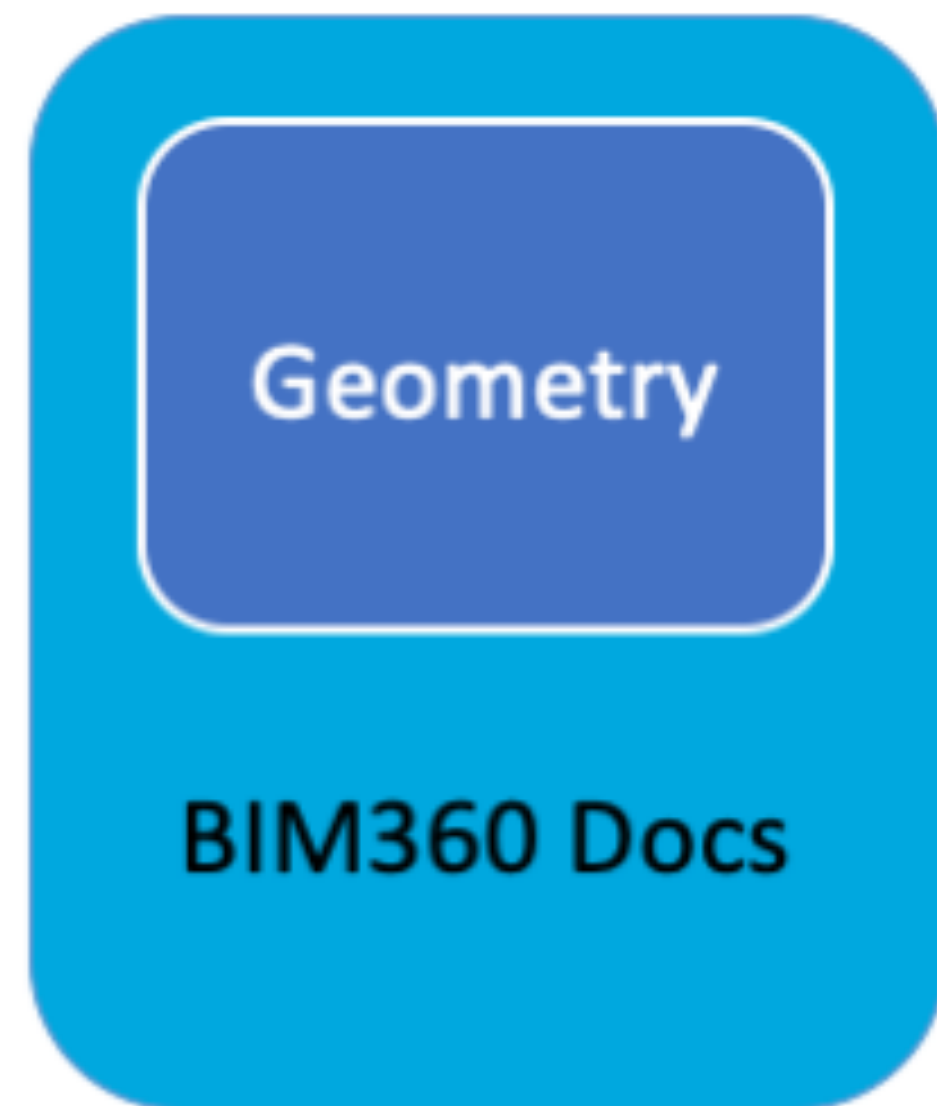
Technology - Platforms and Components



BIM – Building Information Modeling

- Why
 - Canvas for everything
 - Location awareness
 - Birds eye view
- Widened definition of BIM – information model of the building (Operational BIM)
 - Geometry
 - Definition of 3D space, how spaces are interlinked
 - Metadata of things
 - Equipment information, asset properties, facility information – static nature
 - Operational data
 - Real-time status of equipment, occupancy of locations – dynamic nature

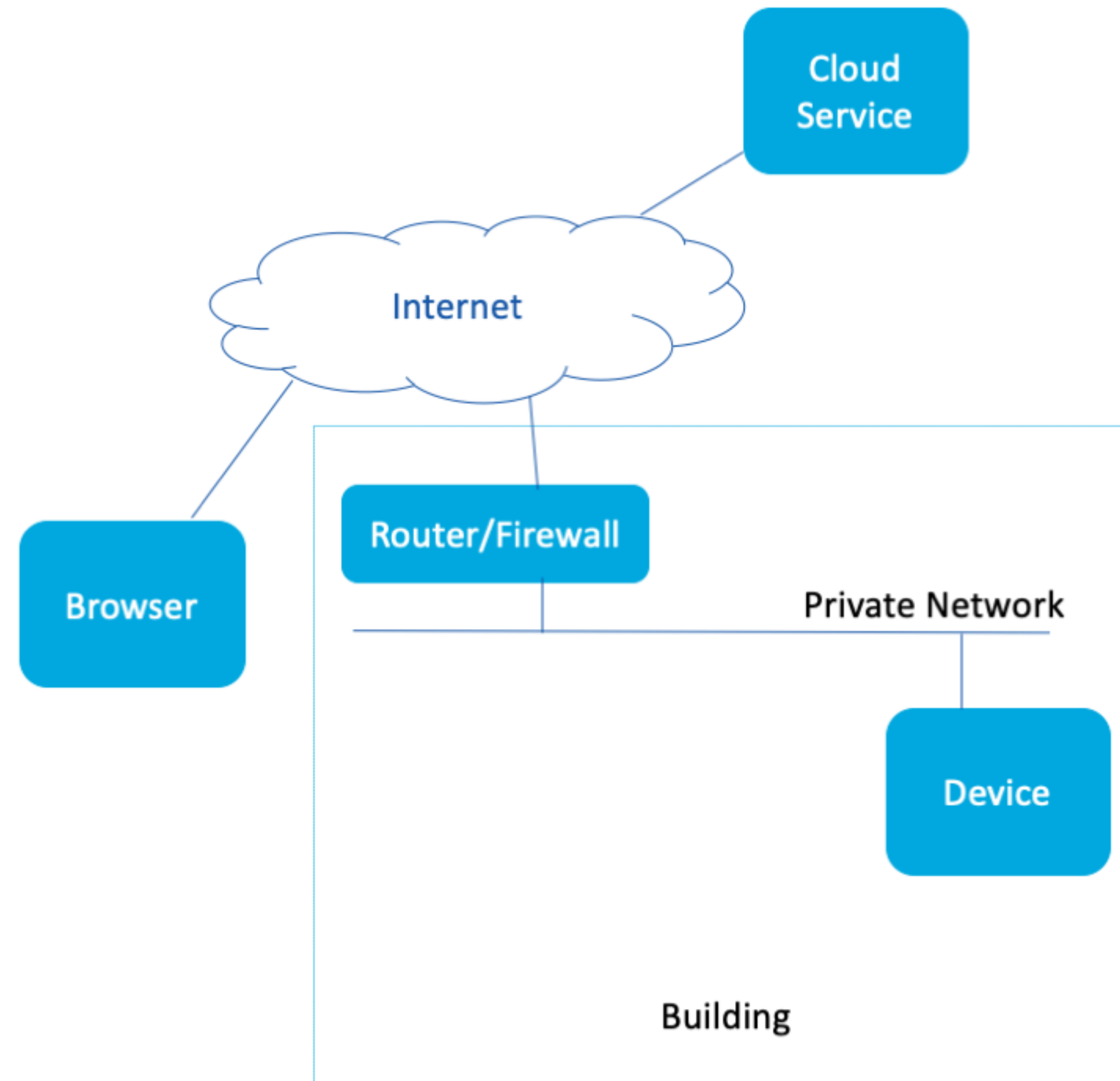
Widened Definition of BIM – Operational BIM



IoT – Internet of Things

- Why
 - Flexibility to rearrange
 - Contribute to multiple systems
 - DIY promise
- Legacy devices
 - Not meant to face IP networks
 - Sit behind a subsystem software
- Transition to IoT is slow but visible
 - CCTV system becoming a collection of IP cameras
- Two way communication is required
 - Monitoring and control

Connecting to Legacy Devices



Limitations of Technologies and the Opportunity

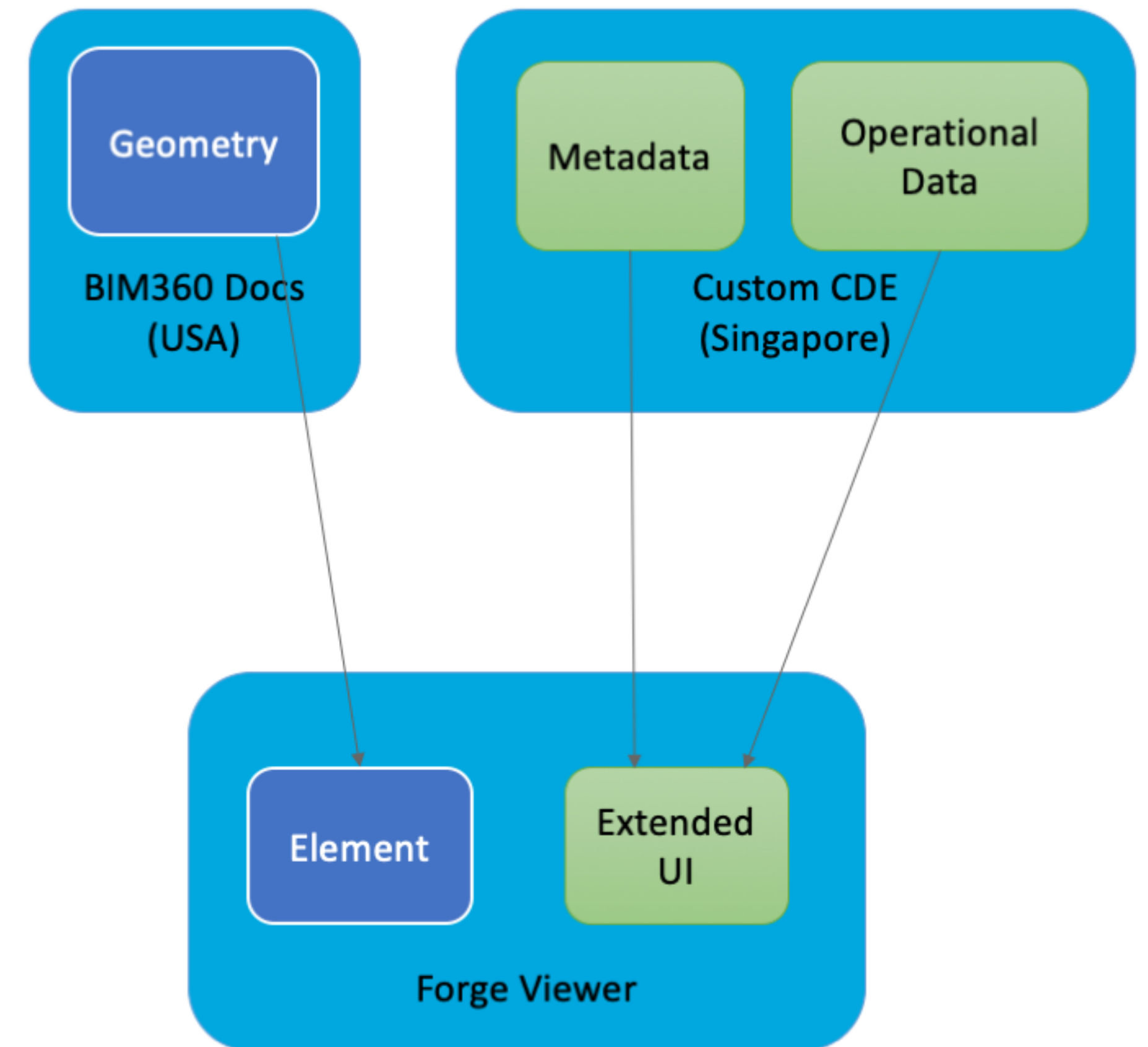


Limitations of Technology and the Opportunity

- Navigation through BIM
 - Viewports
 - AR/VR
 - Indoor location services
 - QR codes
 - Wi-Fi & BLE beacons
- Large BIMs
 - Search across multiple files
 - Move from file-based BIMs to object-based BIMs allowing filtered extraction

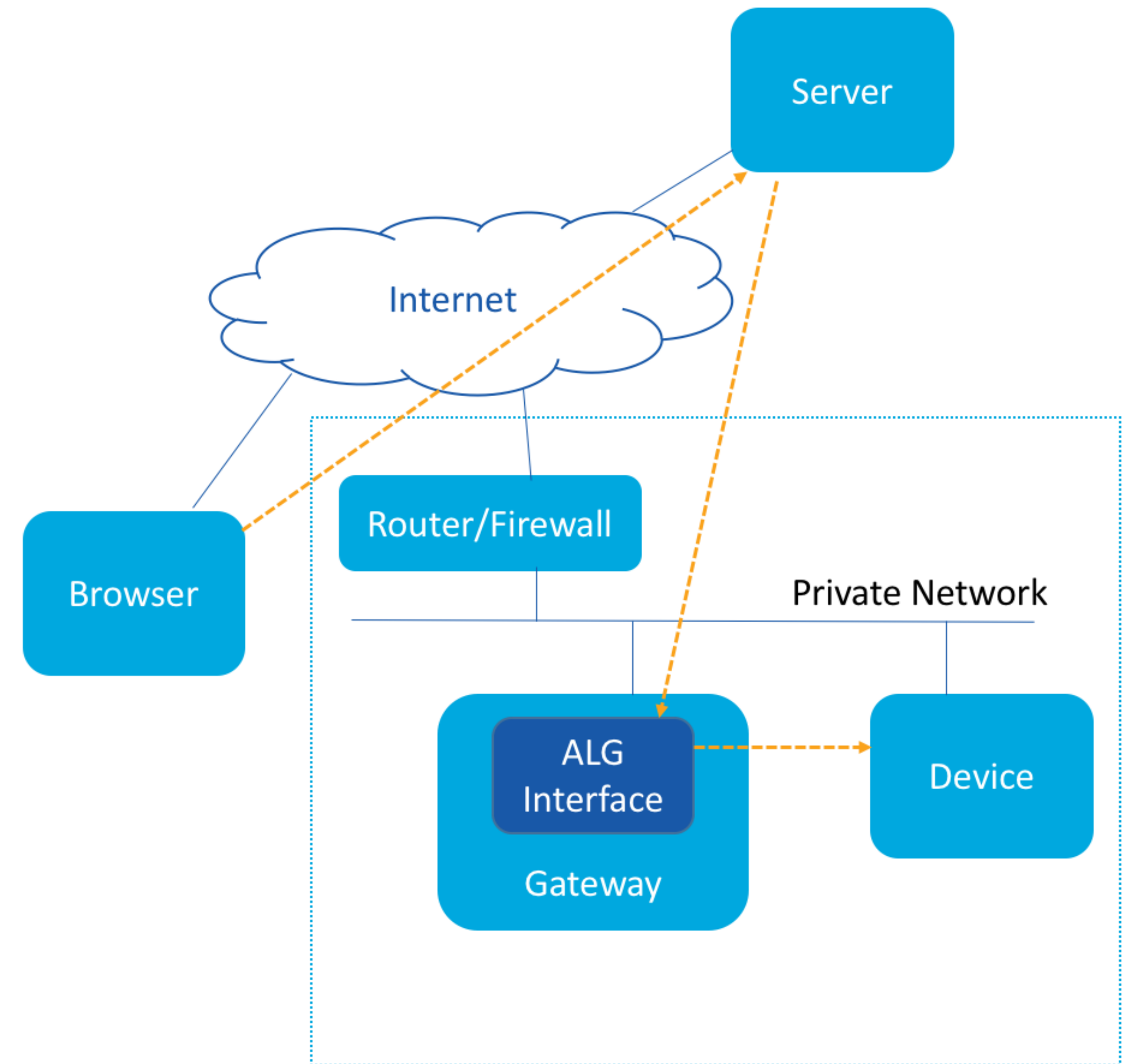
Limitations of Technology and the Opportunity

- Data Security concerns
 - Keeping data in own country
- Data Ownership
 - Ownership of operational data could be different from geometry & metadata
 - User rights assignment requires granularity



Limitations of Technology and the Opportunity

- Security for internet facing devices
 - Built-in security of IoT
- Application level gateways (ALG) & airgaps
 - Make devices perform limited operations
 - Whitelist devices



Summary

SMART BUILDING OPERATIONS

Focus on operations that makes the building smart. Make everyone 'building operators'. Use platforms and components instead of pre-integrated solutions.

BIM AND IOT CAN SOLVE THE PROBLEM – WITH TIME

BIM tools and platforms are evolving. Aware of the transition from legacy devices to IoT.

LIMITATIONS OF TECHNOLOGIES AND THE OPPORTUNITY

Both BIM and IoT have limitations today hence the opportunity for the service providers to come up with neat solutions to fill the gaps.



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