



DEVELOPERS LIVE

AEM Screens as a Cloud Service

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Adobe

Case study: Re-imagining AEM Screens for the cloud

- What is the challenge?
 - Scaling architecture for digital signage
- Why does it matter?
 - Scale, delivery speed and efficiency
- Why should you care?
 - Apply some of the learnings to your projects / products



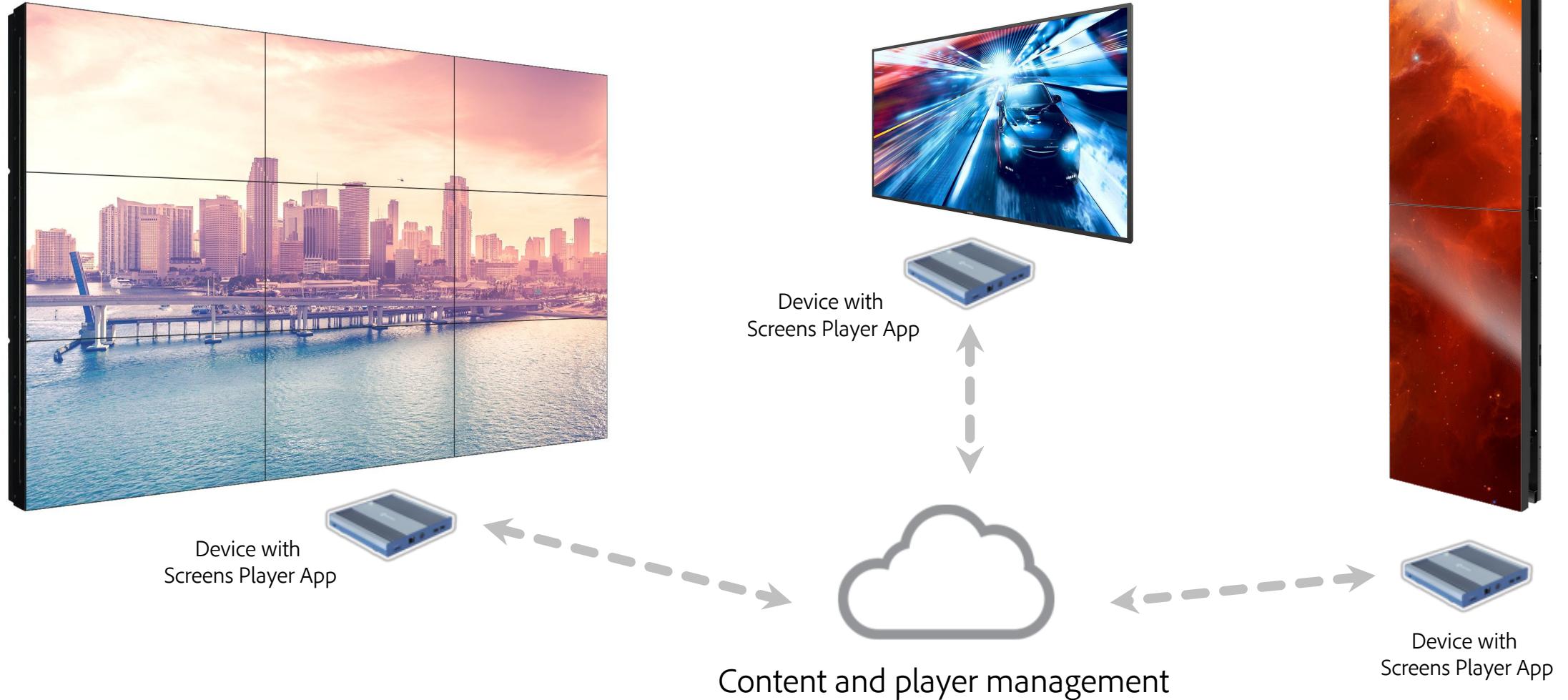
Male
Age 30

New Available



199\$ Man's Suit
★★★★★ 14.7

AEM Screens components



Challenges running player management in CMS

Content management



Unidirectional content delivery



Complex configuration



Author / Publish scaling model

Player management



Player bidirectional communication



Zero-config operations



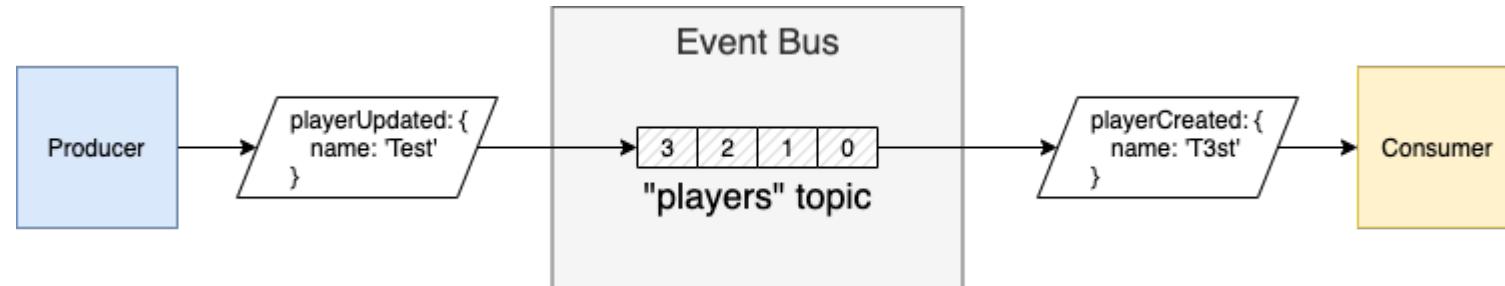
Scale with number of players

Path forward

- Write-optimized
 - Support incoming player telemetry at scale
- Elastic
 - Scale with growing player base
- Loosely coupled
 - The right tech for the right job
 - Minimize blast radius
 - Rapid delivery

Event streaming

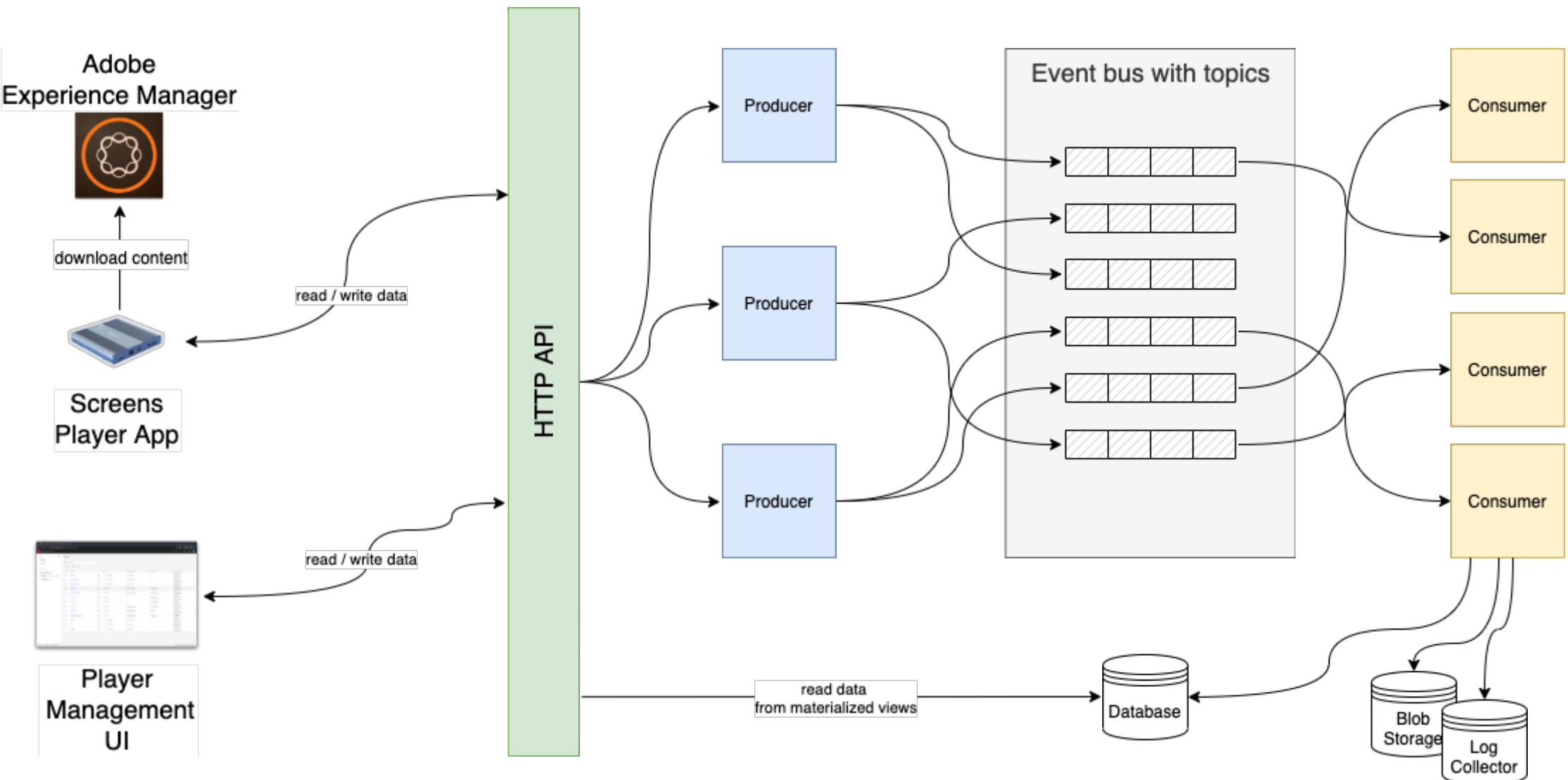
- Asynchronous
- Decoupled
- Easy scaling



Event sourcing

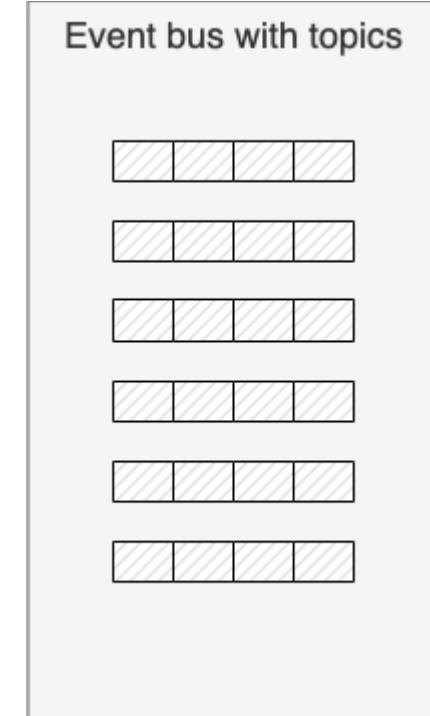
- Immutable log of state changes
- Derive current state from immutable log
- Know where you are, but also how you got there
 - Experience intelligence
 - Audit / Replay / Actionability
- Benefits Command-Query Responsibility Segregation (CQRS)

Architecture



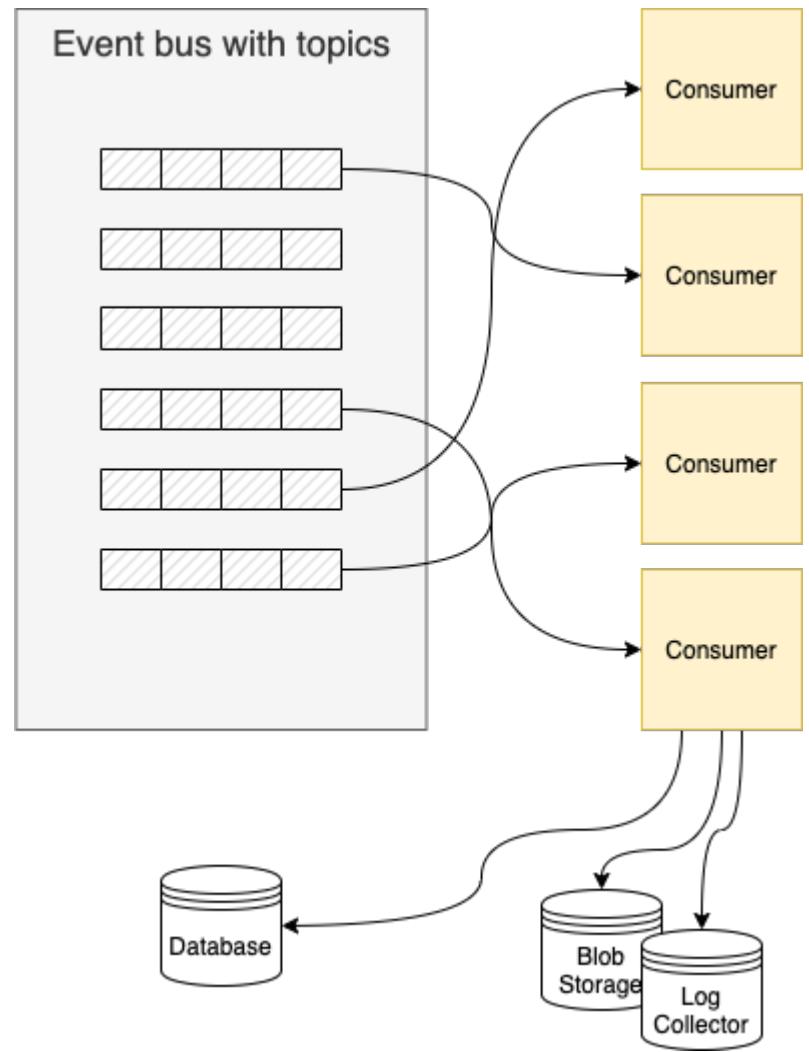
Apache Kafka | Event Bus

- Event streaming
- Event storage
- Kafka as a cloud service



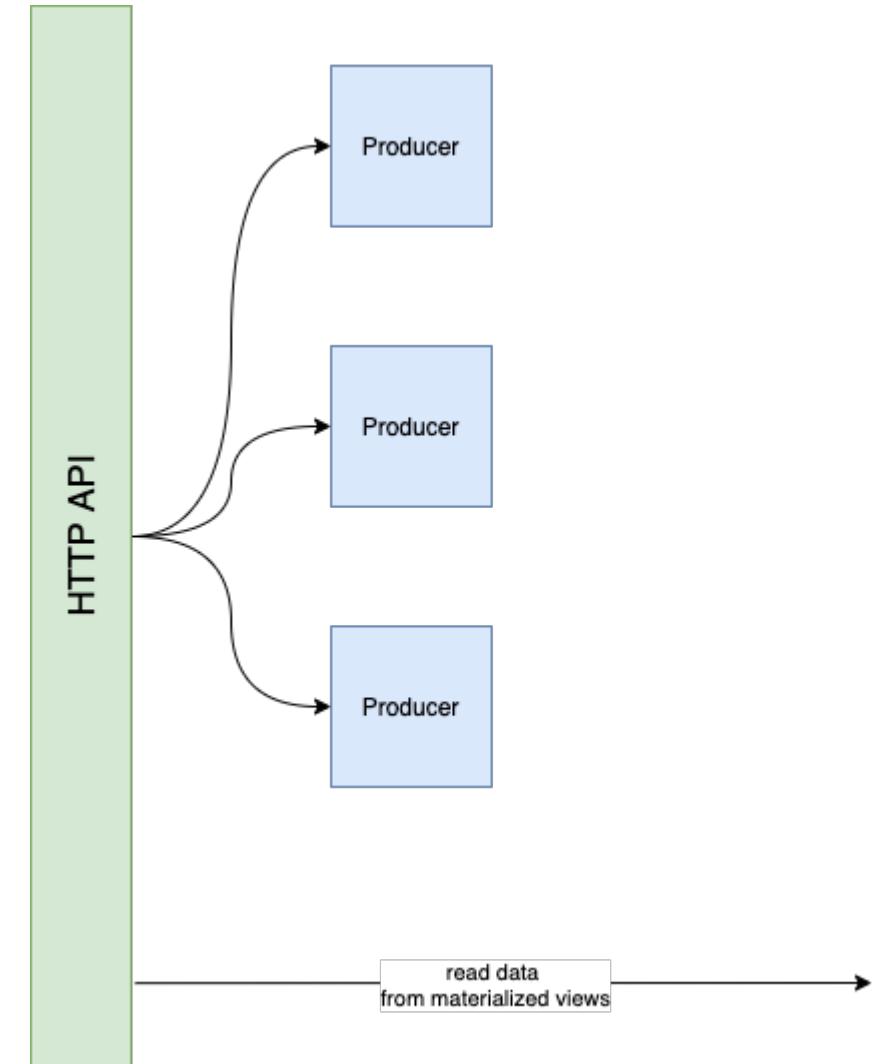
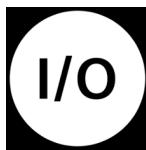
Adobe Ethos | Container as a Service (CaaS)

- Long-running mini-applications
- Kubernetes-based
- Node JS container
- Consume events
- Apply events to materialized view



Adobe I/O Runtime | Functions as a Service (FaaS)

- Short-running mini-applications
- Node JS functions on OpenWhisk
- Process HTTP requests
- Produce events
- Read from materialized views



UI

- React JS
- Spectrum Design System
- Optimized UX for digital signage
- Unified access to Adobe Experience Cloud
- Deployed as Project Firefly application

The image displays two side-by-side screenshots of the Adobe Experience Cloud interface, specifically the Device management section.

Top Screenshot (Displays):

- Left Sidebar:** Project, Displays (selected), Channels, Network Admin, Device management.
- Right Content Area:** Title: Displays. Filter: Hide filters, Search. Sort by: Last Modified. Table headers: NAME, ASSIGNED DEVICE(S), ASSIGNED CHANNELS, LAST MODIFIED. Data rows:
 - Bucharest display (Assigned, Lionel Android 9, 3 channels, 4 months ago By API)
 - London display (Unassigned, Kevin Test, 2 channels, 4 months ago By API)
 - Hamburg display (Unassigned, Manuel 9 1, Manu..., 3 channels, 4 months ago By API)

Bottom Screenshot (Devices):

- Left Sidebar:** Project, Displays, Channels, Network Admin, Device management (selected), Devices, Registration Codes.
- Right Content Area:** Title: Devices. Filter: Hide filters, Search. Sort by: Status. Table headers: NAME, STATUS, ASSIGNED DISPLAY, LAST PING, LAST MODIFIED. Data rows:
 - Manuel 8 1 (Selected, Live, —, 2 minutes ago By Manuel Nilsson)
 - Manuel 9 1 (Unselected, Live, Hamburg display, 45 seconds ago By Manuel Nilsson)
 - Manuel 8 2 (Unselected, Live, —, 43 seconds ago By Damien Antipa)
 - Kevin Test (Unselected, Error, London display, 2 months ago By Manuel Nilsson)

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Conclusion



Read vs write

- Event streaming and sourcing
- Command-Query Responsibility Segregation



Scaling

- Independent scaling of consumers and producers
- Independent scaling of functions / services
- High throughput event bus



Decoupling

- Event-based architecture
- Functional decomposition

Resources

- [AEM Screens Introduction](#)
- [Adobe I/O Runtime](#)
- [Project Firefly](#)
- [React Spectrum](#)
- [Adobe Ethos](#)
- [Event Sourcing](#)
- [CQRS](#)

