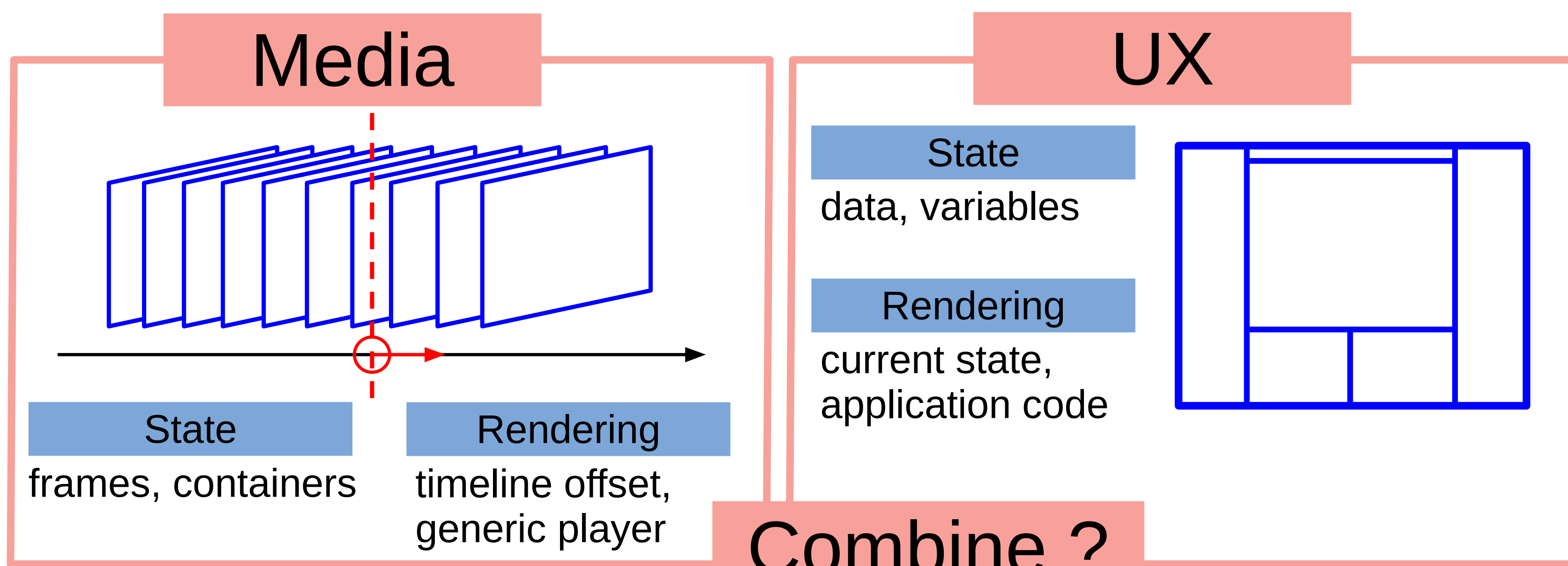


Unify Media & UX

with timed variables

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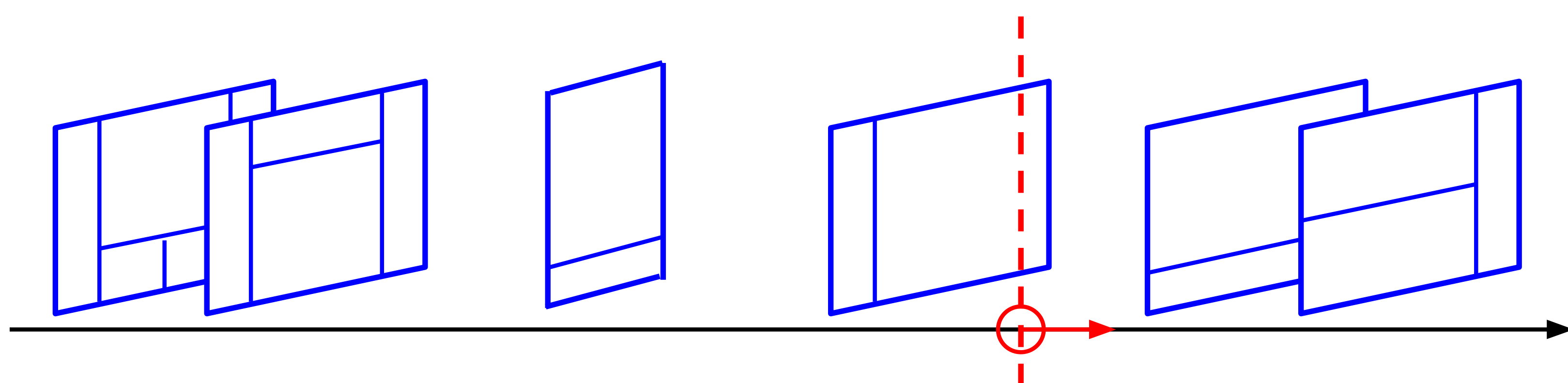
Media Futures



Media with UX
 Secondary device, overlays
 Web Data Tracks, HbbTV, Object Based Media

UX with Media
 Games: pre-rendered sequences, instant replays, gameplay live streaming

UX + Timeline



Rewind UX by 50 seconds?
 - Undo? instant replay?

Time-shifted, **native** UX playback?
 - review historical UX session?

Produce/capture & distribute **native** UX?
 - Broadcast UX session?
 - Shared UX sessions?

- Adopt**
 Media timeline, timeline navigation, time-consistency, time-resolution
- Keep**
 UX state representation & rendering

Why?

Interactivity <ul style="list-style-type: none"> Videotaping UX takes interactivity away, along with other drawbacks Ex: filming UX in broadcast studio Instead, distribute UX as UX, render time-shifted to match broadcast delay. 	Collaboration <ul style="list-style-type: none"> Interactivity in UX is only local {capture, distribute, replay} as native UX enables shared interactivity Ex: collaborative, interactive map session with 2D & 3D maps
Accessibility & Personalization <ul style="list-style-type: none"> People (and devices) want and need different things, and preferences are circumstantial. Pre-rendered media is inflexible, one-size-fits all UX supports flexible, late-binding, but lacks a media timeline 	Live & Replay <ul style="list-style-type: none"> Stream & visualize data from live events Eg: firefighters, cameras, sensors, cell phones, gps, radio comm, messages Debrief, evaluation and documentation calls for time-shifting and replay Not only data, but also state of visual interfaces...

Hypothesis

- Innovation is unnecessarily complicated due to fundamental inconsistencies between Media and UX
- Fix fundamentals! A common basis for Media and UX?
- => Remove inconsistencies, ease integration, flexibility, best of both worlds!

Research Questions

- Feasible to unify Media and UX?
- Will it make the world a better place?
- Reduce complexity and costs? More flexibility and innovation?
- Is there a downside? Limitations?

Approach

- Look at low-level building blocks
- Unification => Duality
- Encapsulate complexity
- Generic, versatile... + Don't break existing workflows !

Technical Goal

- Produce/capture and playback UX
- NOT video!**

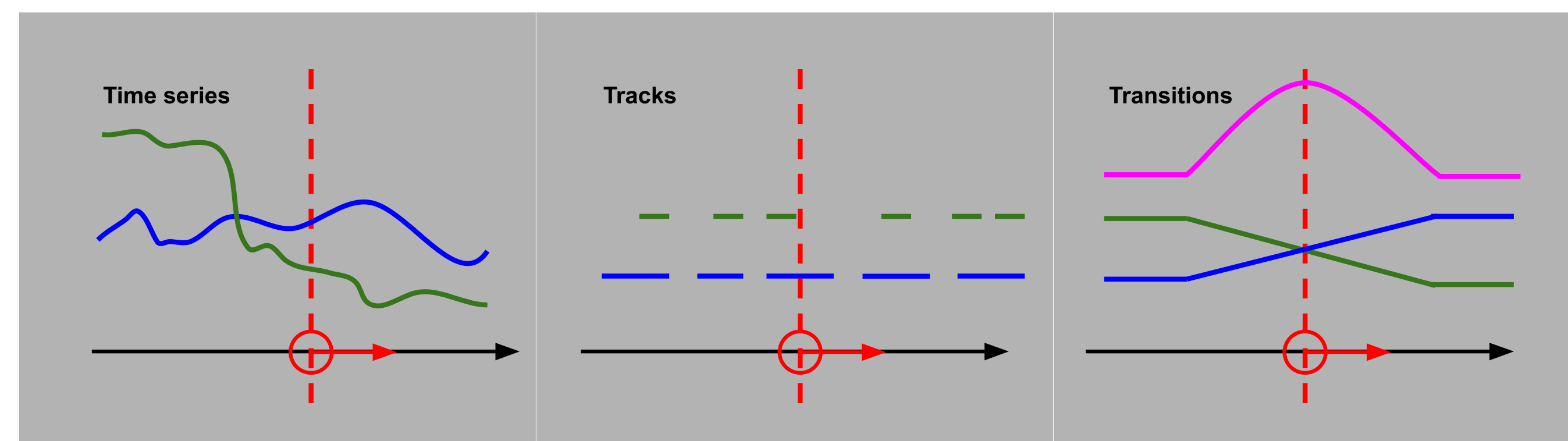
Timeline State Representation for UX <ul style="list-style-type: none"> Well defined UX state across the timeline Represent smooth transitions and interactivity Light footprint - effective storage and distribution 	Timeline Rendering (UX playback) <ul style="list-style-type: none"> Time-consistent, high time-resolution Adapted to device capabilities (screen size, power level, bandwidth) and personal preferences Live or time-shifted
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Technical Challenges

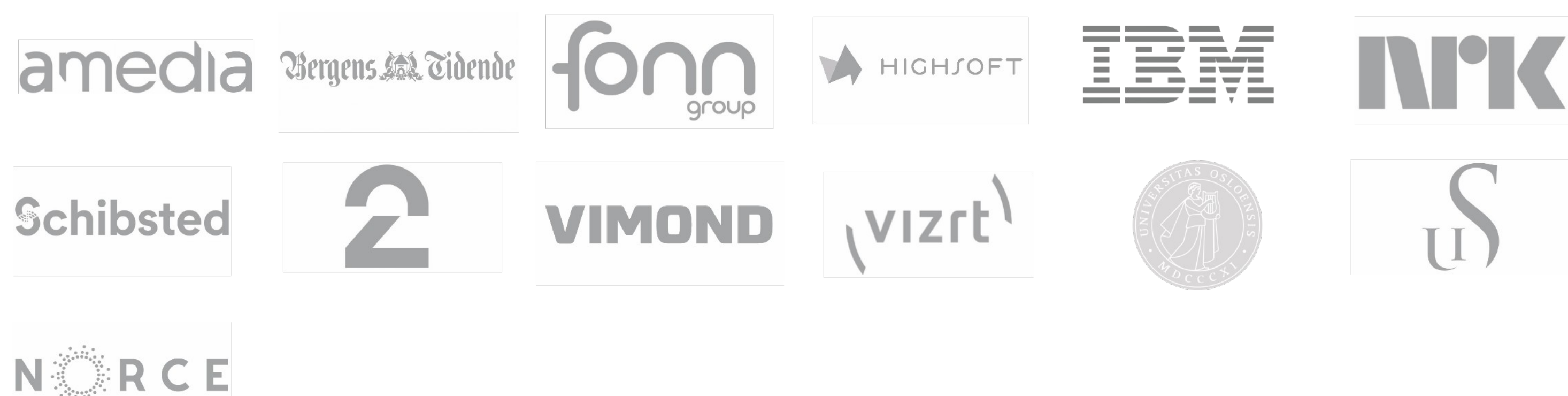
- ✓ Timeline concept for UX
 Timing Object <https://webtiming.github.io/timingobject/>
- ✓ Timeline playback of external data sources (timed data)
 Sequencer <https://webtiming.github.io/timingsrc/>
- ✗ Capture, representation and playback of internal UX state
 Transitions, user interactivity, ...

Timed Variables

- Internal UX state is made from variables
- Add timeline support to individual variables!
- Value change in variable caused by {assignment | time-navigation}
- Unified representation for basic concepts {time-series | tracks | transitions}
- Duality – variable & playback object



PARTNERS



HOST



UNIVERSITY OF BERGEN

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