SPIRIT

The Use of Standards and the Challenges of Standardisation in the SPIRIT Project

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5th BeyondXR Cluster Webinar

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Research Group *Multimedia Communication*

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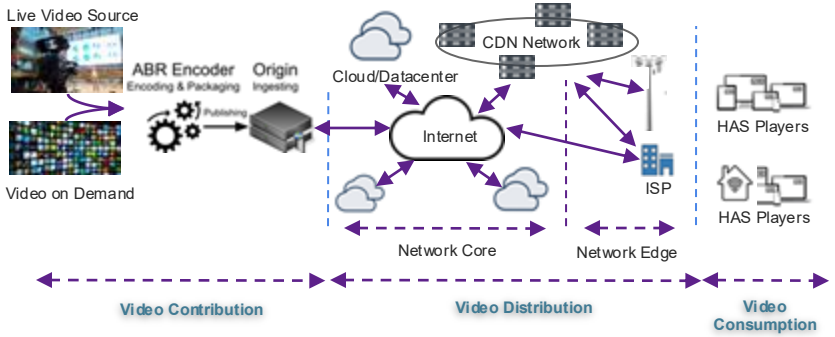

MPEG

BITMOVIN

KEY RESEARCH AREAS

- Dynamic Adaptive Streaming over HTTP (MPEG-DASH)
- **Multimedia Quality of Service / Experience (QoS/QoE)**
- 360° video, **immersive content streaming**
- Multimedia over 5G / edge computing
- Communication in multi-drone systems
- **Standardisation (ISO/IEC MPEG)**

SELECTED PROJECTS

- ATHENA: Adaptive Streaming over HTTP and Emerging Networked Multimedia Services (Christian Doppler Laboratory)
- **SPIRIT: Scalable Platform for Innovations on Real-time Immersive Telepresence (EU Horizon Europe)**
- GAIA: Intelligent Climate-Friendly Video Platform (FFG)
- NAV: Networked Autonomous Aerial Vehicles (AAU, Karl Popper Kolleg)

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Introduction: SPIRIT Project

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Conclusion / Take-Home Message

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SPIRIT PROJECT

SPIRIT := Scalable **P**latform for **I**nnovations on **R**eal-time **I**mmersive **T**elepresence

Ambition: realise Europe's first **multi-site & interconnected framework** dedicated to supporting the operation of **hetero-geneous collaborative telepresence applications at scale** through relevant technology innovation

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SPIRIT IN A NUTSHELL

Addressed call: eXtended Collaborative Telepresence
HORIZON-CL4-2021-HUMAN-01-25

Outcome: SPIRIT system, a distributed network and application platform with interconnected sites

Third party experimentation through 2 dedicated Open Calls

Targeted TRL: from TRL 4 to TRL 7

Duration: 3 years (2022-2025)

Consortium:

imec
AWTG
T
ERICSSON
Fraunhofer HHI
UNIVERSITÄT KLAGENFURT
UNIVERSITY OF SURREY
DIGITAL FOR PLANET

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SPIRIT OBJECTIVES

1. Appropriately compressed information transmission to support a wide range of network bandwidths
2. Overcome the limitations of current technologies in handling large numbers of concurrent users
3. Support different input and output modalities as the bandwidth capacities extend
4. Through open standards, support the integration of additional services
5. Ensure security, protect user privacy and implement innovative identity management solutions
6. Develop, document and promote open standards-based interfaces - such as APIs
7. Provide systems to facilitate human-to-human and human-to-machine interaction
8. Demonstrate clear and efficient integration paths for take-up by European industries

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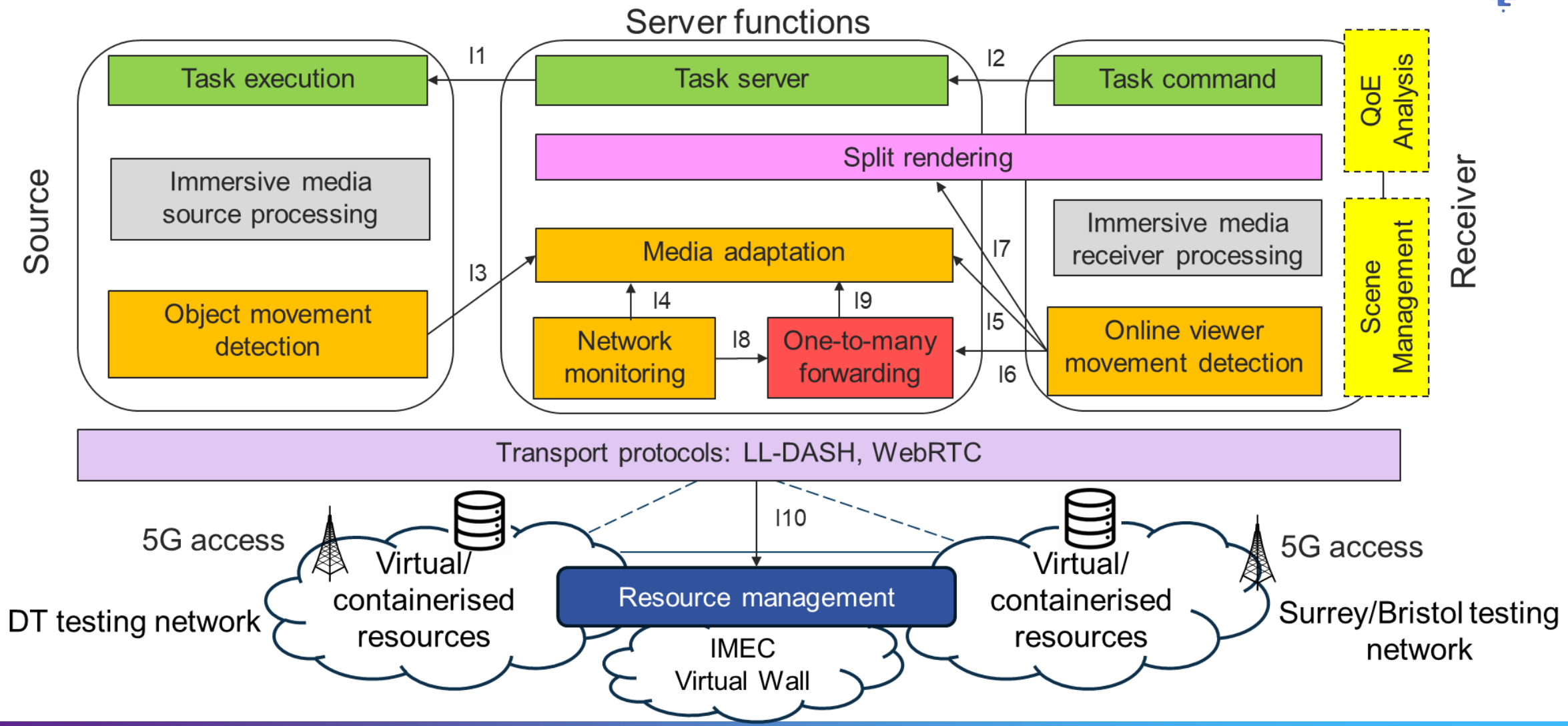
SPIRIT PLATFORM / ARCHITECTURE



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SPIRIT USE CASES

SPIRIT partners designed a set of use cases to validate and test the features of the SPIRIT platform.

- **Use case #1: Live Multi-Source Holographic Streaming**
- **Use case #2: Real-Time Animation and Streaming of Realistic Avatars**
- **Use case #3: Holographic Human-to-Human Communication**
- **Use case #4: Distributed Steering of Autonomous Mobile Robots (AMR)**

Learn more at: **https://spirit-project.eu/use-cases/**

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SPIRIT OPEN CALLS

SPIRIT provides more than **3M EUR** in two waves of Open Calls to financially support the involvement of third parties to **develop and further test their individual applications using the capabilities of the SPIRIT platform**.

2 waves of Open Calls

3M EUR of total funding

Up to 9 months of testing projects

25 funded project testing

SMEs, industries, research & scientific organisations

Open Call 1: **11 projects** (selected out of 61 submissions) Announcement of SPIRIT Open Call 1 Winners

Open Call 2: **16 projects** (selected out of 62 submissions) Key highlights of SPIRIT Open Call 2

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ON STANDARDS IN GENERAL …

“The nice thing about standards is that you have so many to choose from.”

Andrew S. Tanenbaum, *Computer Networks*

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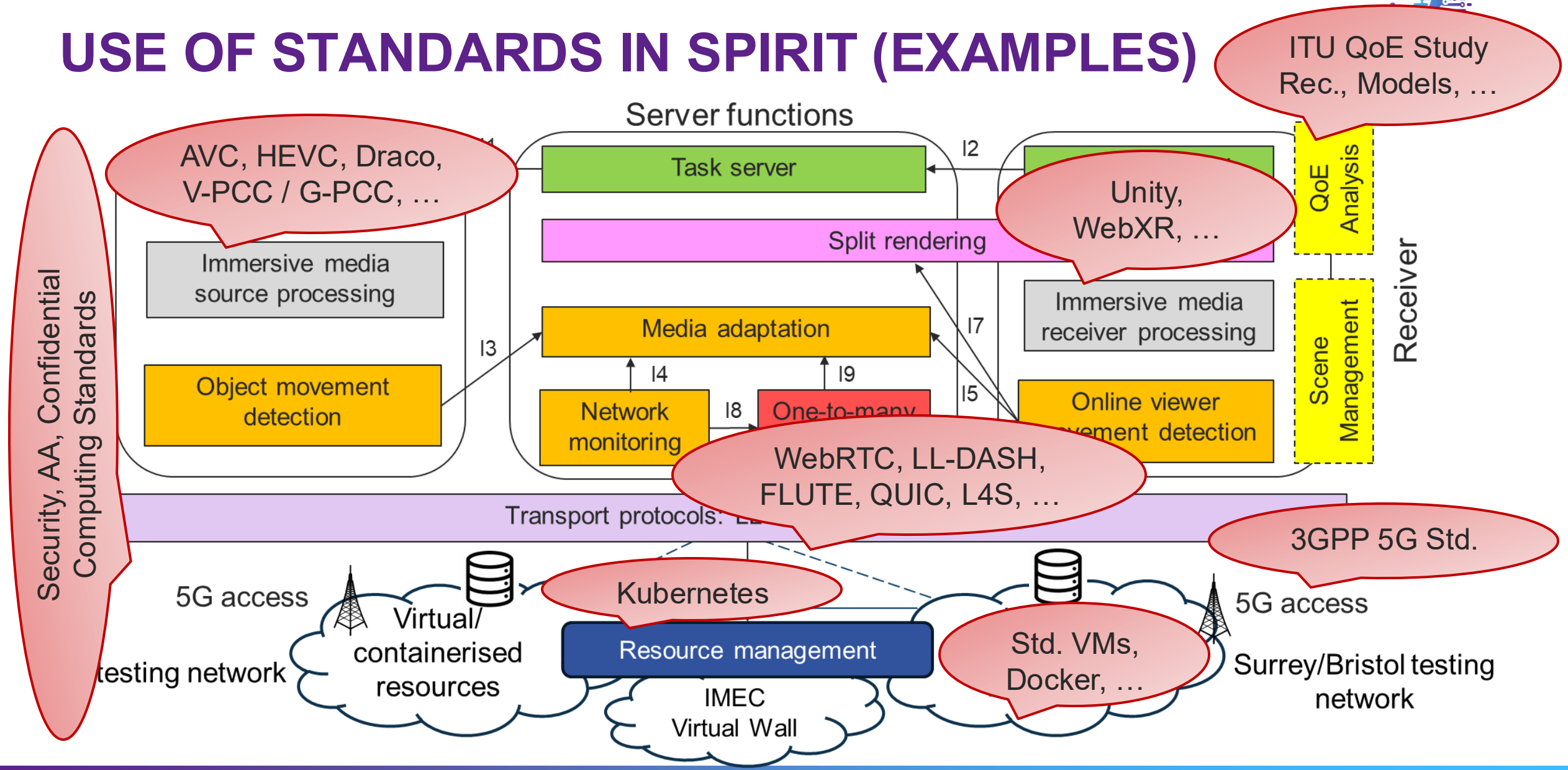
USE OF STANDARDS IN SPIRIT (EXAMPLES)



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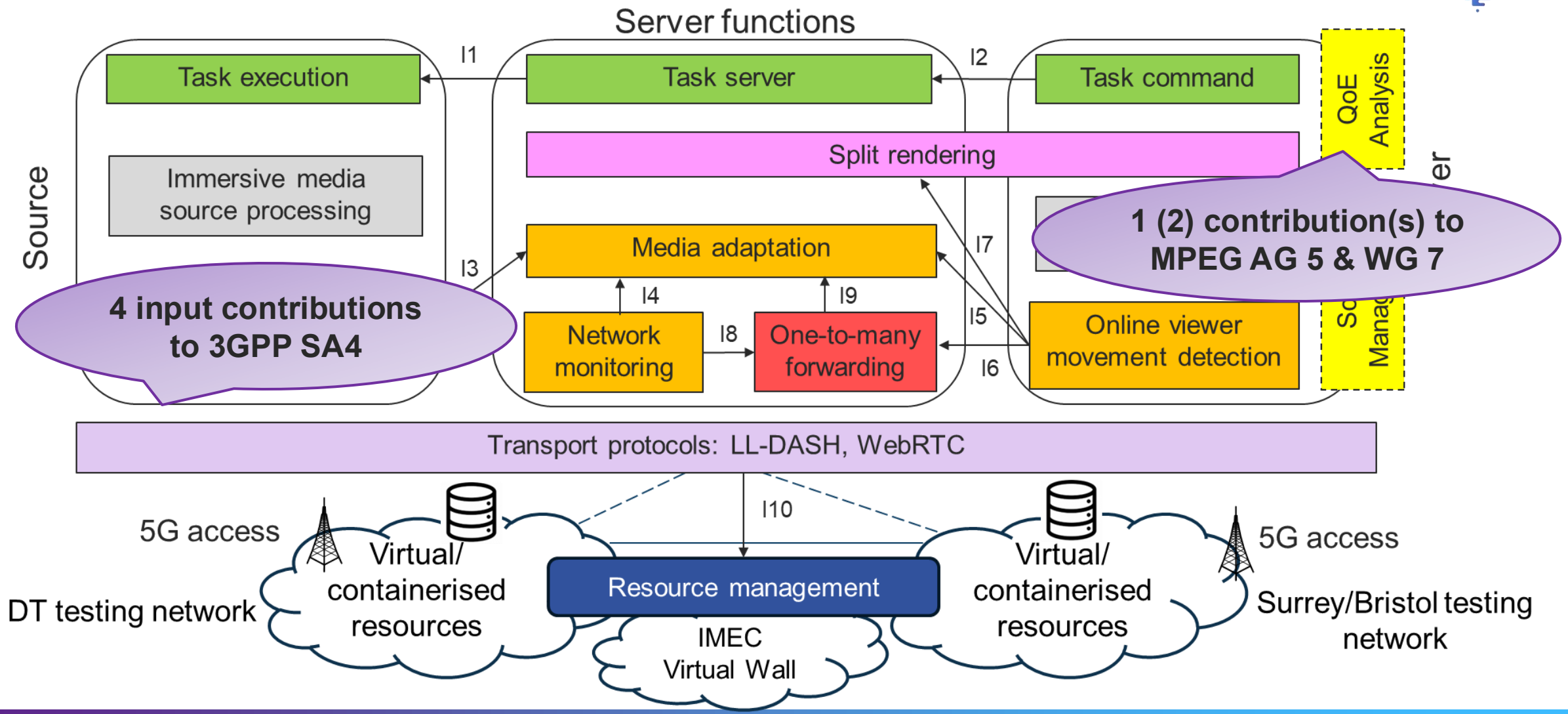
SPIRIT CONTRIBUTIONS TO STANDARDISATION



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CHALLENGES OF STANDARDISATION

Challenge #1:

Standardisation is a long process, needs long-term commitment, and persistence.

Example:

MPEG processes

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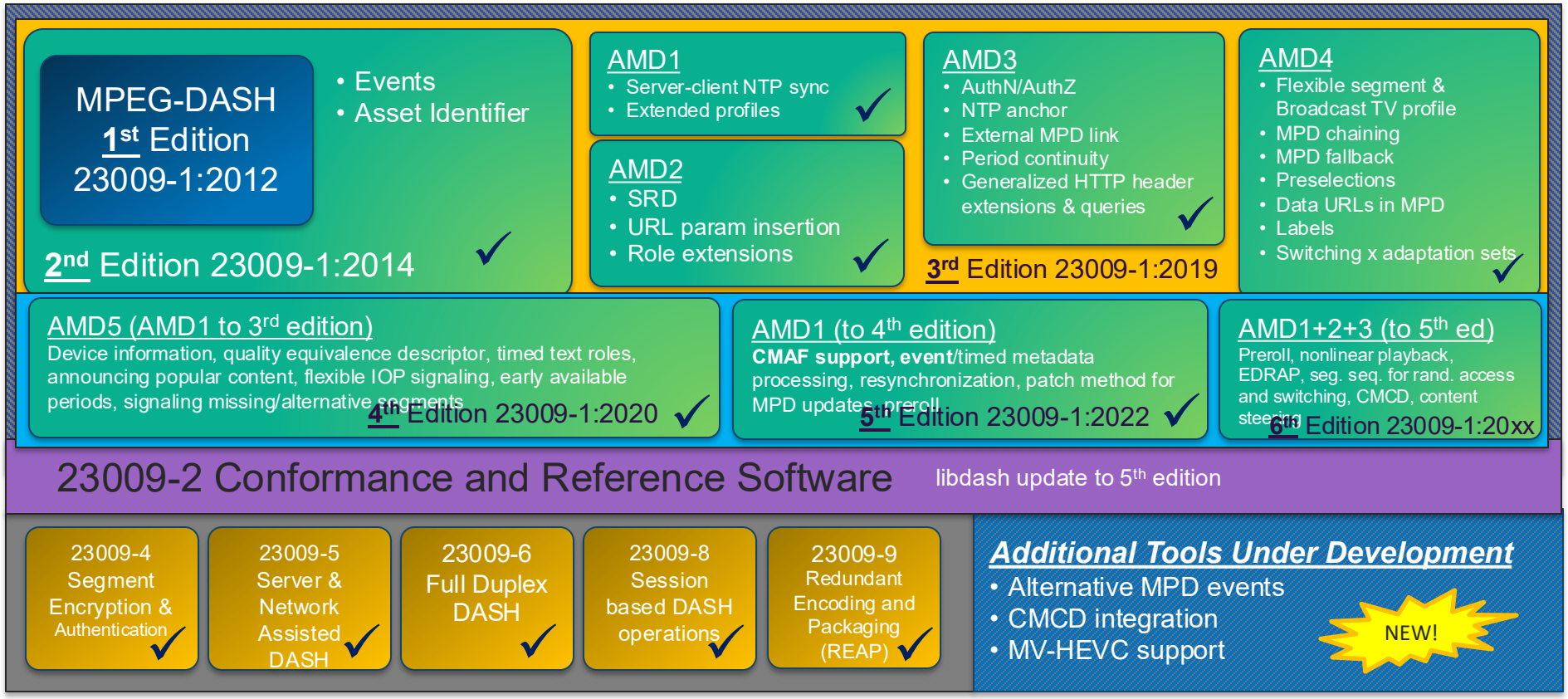
EXAMPLE: MPEG–DASH (STATUS 11/2024)



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CHALLENGES OF STANDARDISATION (cont'd.)

Challenge #2:

Standardisation, standards-defining organisations (SDOs), even monitoring of and assessing standardisation activities are complex, take time, need effort, and legitimate interest.

Example:

Metaverse Standards Forum (MSF) activities

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CHALLENGES OF STANDARDISATION (cont'd.)

Challenge #3:

Doing relevant, impactful, decisive work.

Pitfall:

Creating yet another standard, potentially useless.

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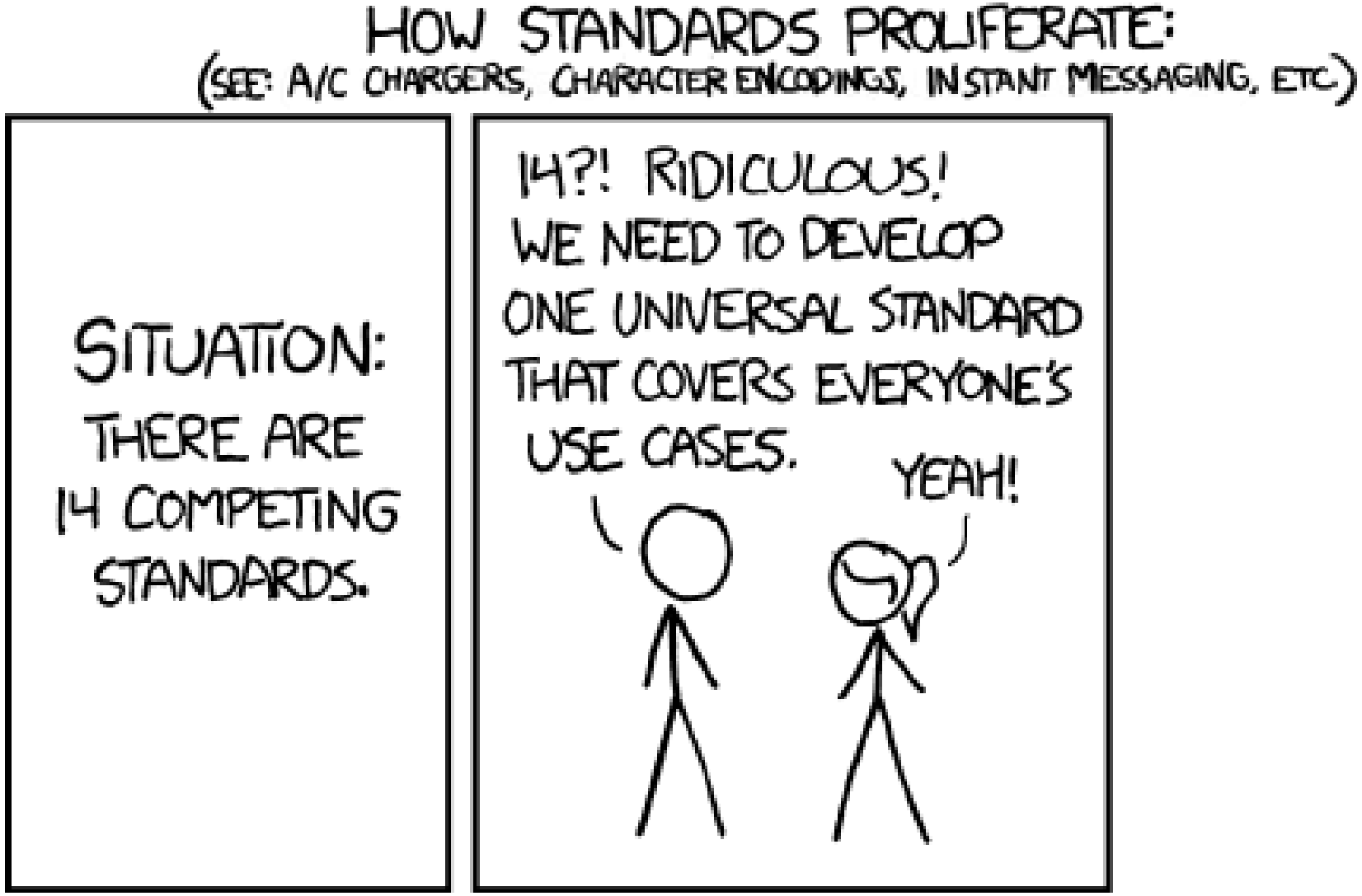
PITFALL



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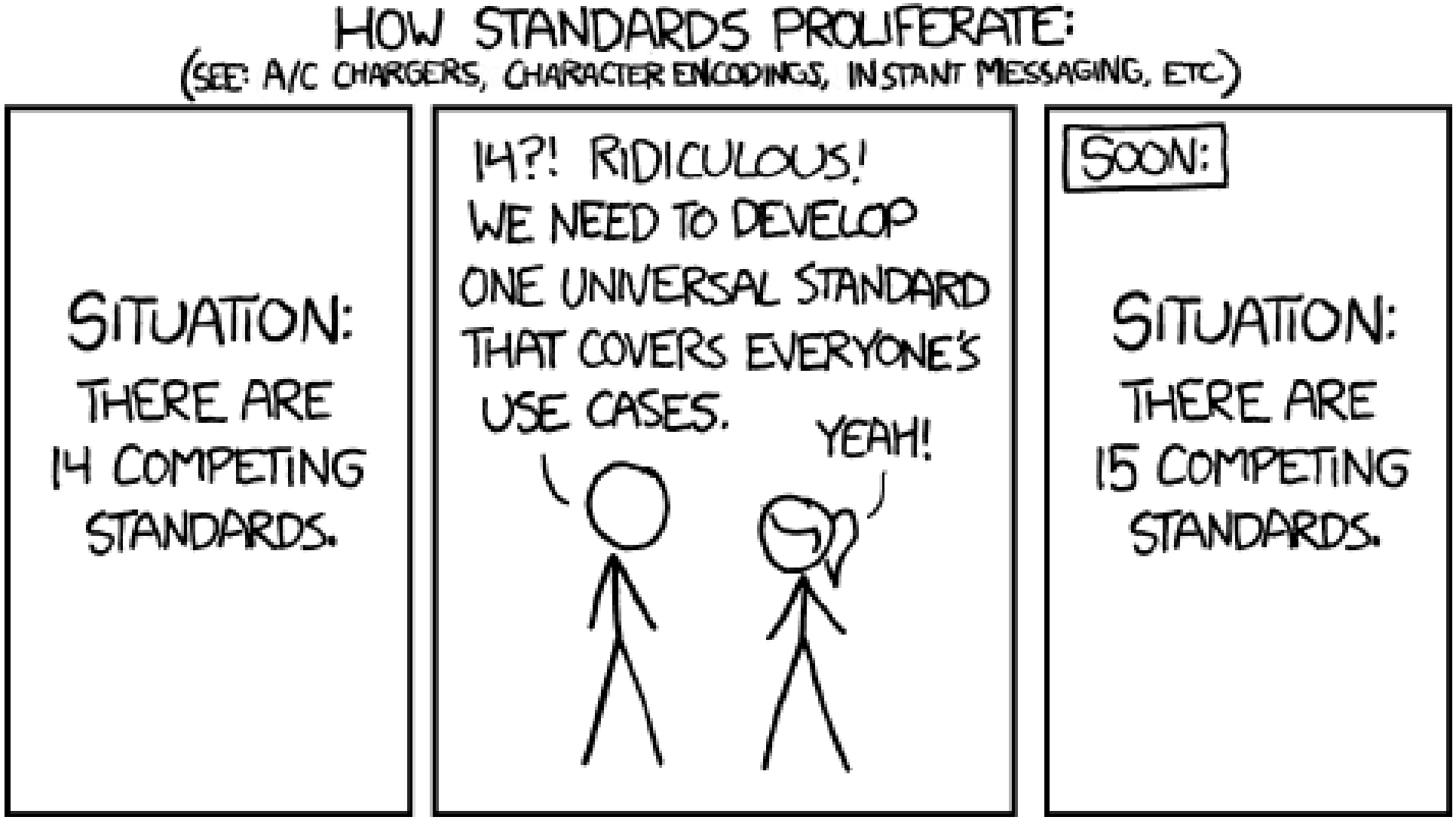
PITFALL



Source: http://xkcd.com/927/

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CONCLUSION / TAKE-HOME MESSAGE

+ **Standards are crucial for interoperability and prosperity.**

± **Standardisation (in EC projects) is possible, albeit challenging.**

– **Concern:** *Will future immersive technologies – based on ML models – still adhere to standards and ensure interoperability, or be proprietary, closed, in the hands of a few big companies?*

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THANKS

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