

OMA-REQ-MobAR-2011-0019-Augmented Reality Standardization

Augmented Reality Standardization

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Contact: Doug Knisely, dknisely@qualcomm.com

Mark Staskauskas, mstaskau@qualcomm.com

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Overview

- What is Augmented Reality (AR)?
- What isn't AR?
- Recommended areas of focus
- Role of mobile broadband service operators in AR
- Recommendations for OMA AR-related activities

What is AR?

- Key characteristics of AR:

- Augmentation of supplemental information into a representation of the physical surroundings
- Augmented information can be any multimedia content
- Augmented information can be static or dynamic
- Augmented information can be interactive to varying degrees, e.g.,
 - Completely static
 - Simple interactive such as clickable links
 - Completely immersive interactivity such as games and virtual environments



Real World View

Live camera view

FASHION | WEST
Rating (52)
★★★★★
2 miles

Ristorante
Italian Cuisine
Rating (134)
★★★★★
.8 miles

Virtual Content

Information about points of interest

Content placement inaccurate due to compass error

GPS and Compass-based Augmented Reality Experience

Good for rough location
of items outside our field
of view





Real World View
Live camera view

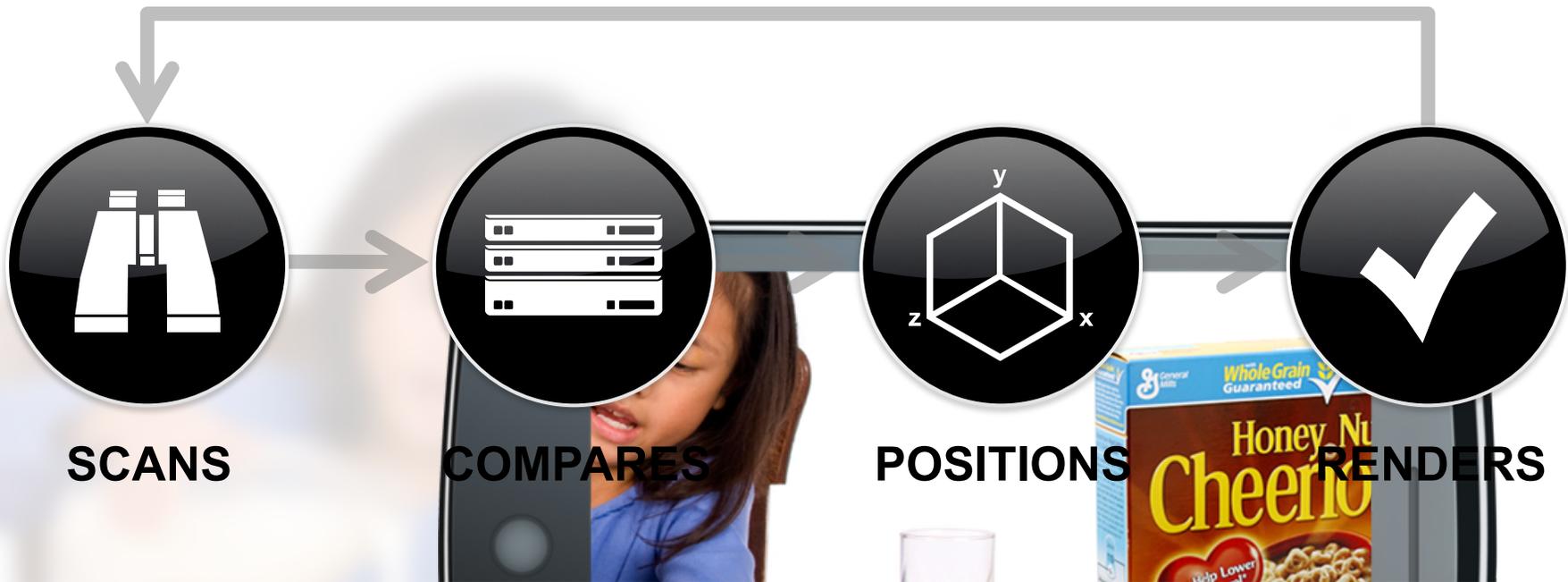


Virtual Content
Vision-based AR recognizes objects in field of view and aligns graphics tightly to target object

Vision-based Augmented Reality Experience

Enables a more immersive and interactive experience





30+ times per second

Applications

Today



3D games in real world environments vs. virtual worlds



Making print, outdoor, TV media, and product packaging “come alive”

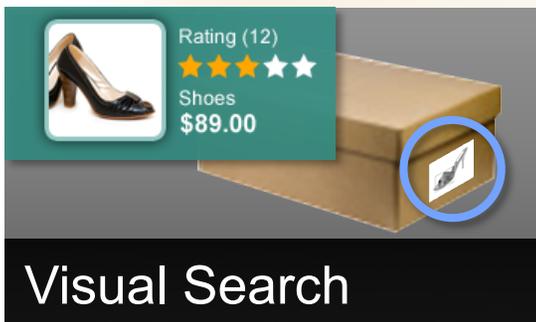


Visualizing instructions e.g. furniture assembly

In the future...



Placing photos, notes, graffiti in real world for friends to find



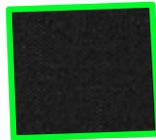
Retrieving related information from web for the object in view



Visualizing points of interest



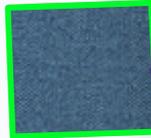
Also Available in



Amy Black



Pinky



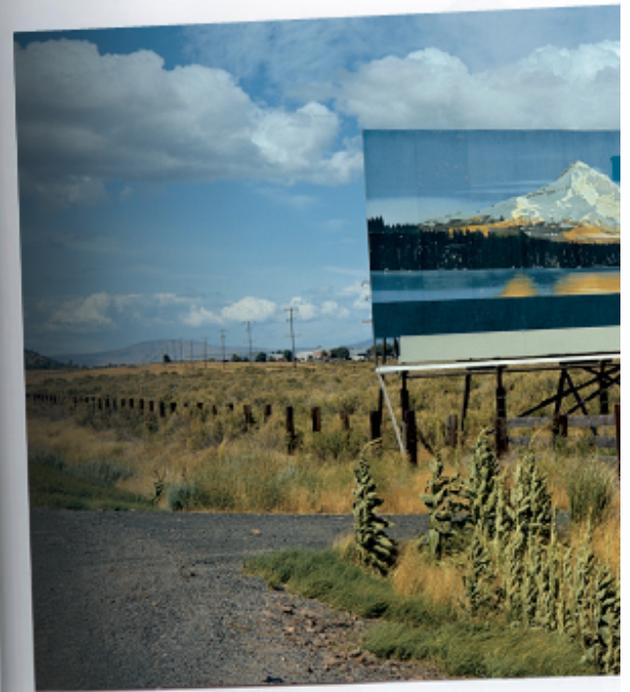
Classic

Jean genie

Classic fit

The Greatest Jeans in the Known Universe are Available Now at All Major Retail Outlets

CHASM



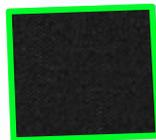
SPOTLIGHT FOTOFREO 2010

In 1996 when Bob Hewitt, Max Pa Gary Dufour and Victor France first conceived of FotoFreo, Fremantle's festival of photography, they took the festival at Arles as a model. La Rencontres d'Arles was then – and continues to be – one of the key nodes of the photography world. But this has changed since 1996: nodes have multiplied and the global community of photographers is if anything a much larger community than it has ever been, connected by online social networks, promoting work, and an explosion of new photography festivals.

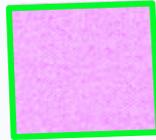
In a world that no longer has a centre, festivals like Western Australia's FotoFreo play an increasingly important role in meshing regional sensibilities with those of the broader world. FotoFreo provides an opportunity for regional photographers to meet and show their work to an international audience. "We want to spread the word about the quality of our photography," says Hewitt, who now programs the festival with June Moorhouse.



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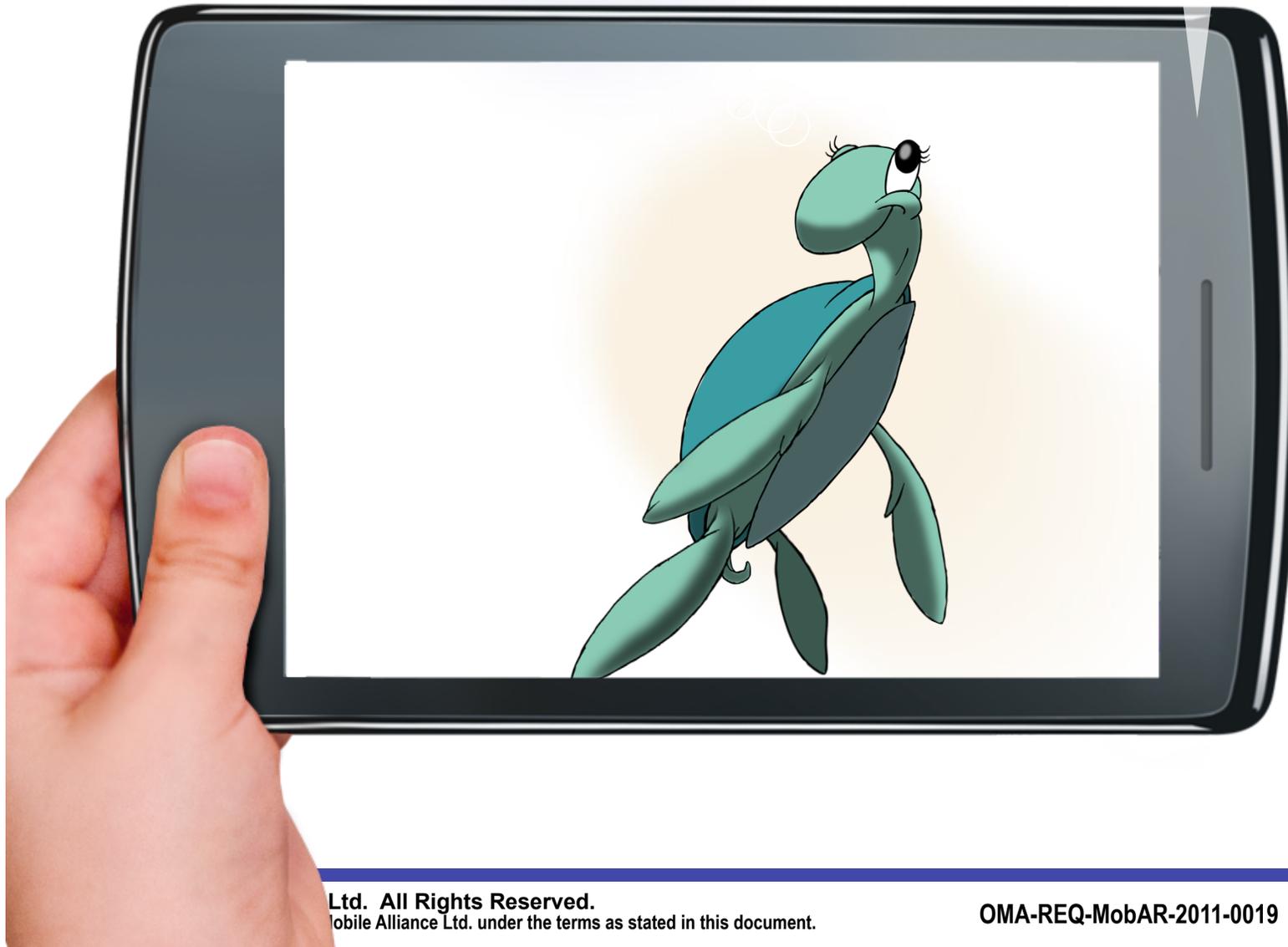


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In a world that no longer has a centre, festivals like Western Australia's FotoFreo play an increasingly important role in meshing regional sensibilities with those of the broader world. FotoFreo provides an opportunity for regional photographers to meet and show their work to an international audience. "We want to spread the word about the quality of our program," says Hewitt, who now programs the festival with June Moorhouse.

Trevor swam out from under his ledge to greet his new friends and munch on some veg.





STEP 1

Touch rinse cycle for more information, then press button on machine

Done



Pre-wash Wash Rinse Spin

Extra Rinse
Use this option if you have sensitive skin and need your undergarments completely soap free.

Temp

Handwash — Silk

Wool —

Synthetics —

Cotton&Linen —

Prewash —

Delay Extra rinse Rinse hold Start/Pause

Wool wash Rinse Spin Drain

STEP 1

Touch rinse cycle for more information, then press button on machine

Done







Shibuya



Miyakezaka













Karmen

"You're never too old to eat alphabet soup"

Shared Friends



Find Karmen On ...

myface

chatter

Karmen Recommends



Joe's



Karmen

"You're never too old to eat alphabet soup"

Shared Friends
chatter

Karmen dined at Gibsons last night and loved the crabstack! Gotta try it!

Find Karmen On MyPlate
3 hours to go on deadline...
cutting it close!

Karmen recommends cool with
Virtual Dressing Room



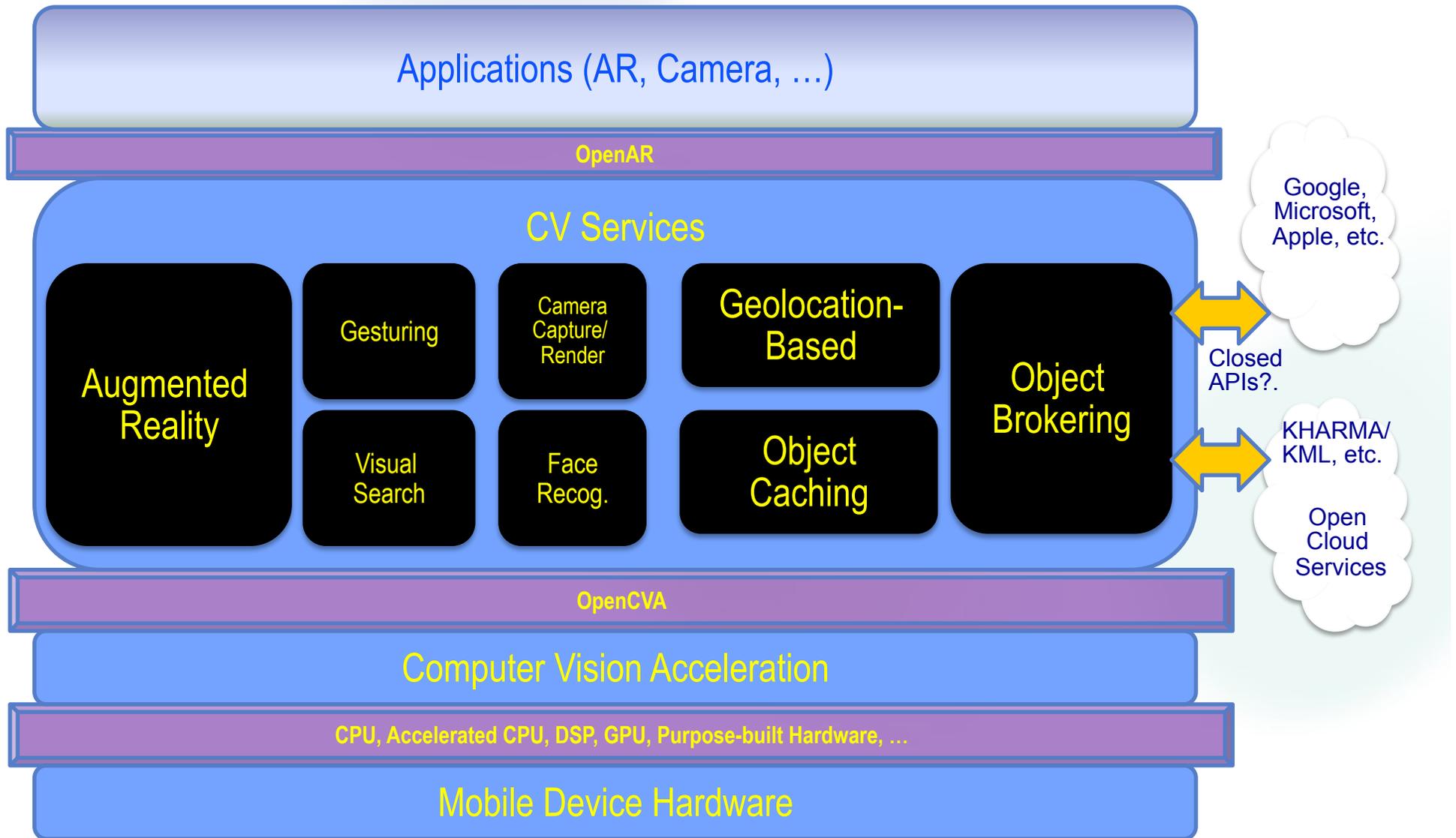
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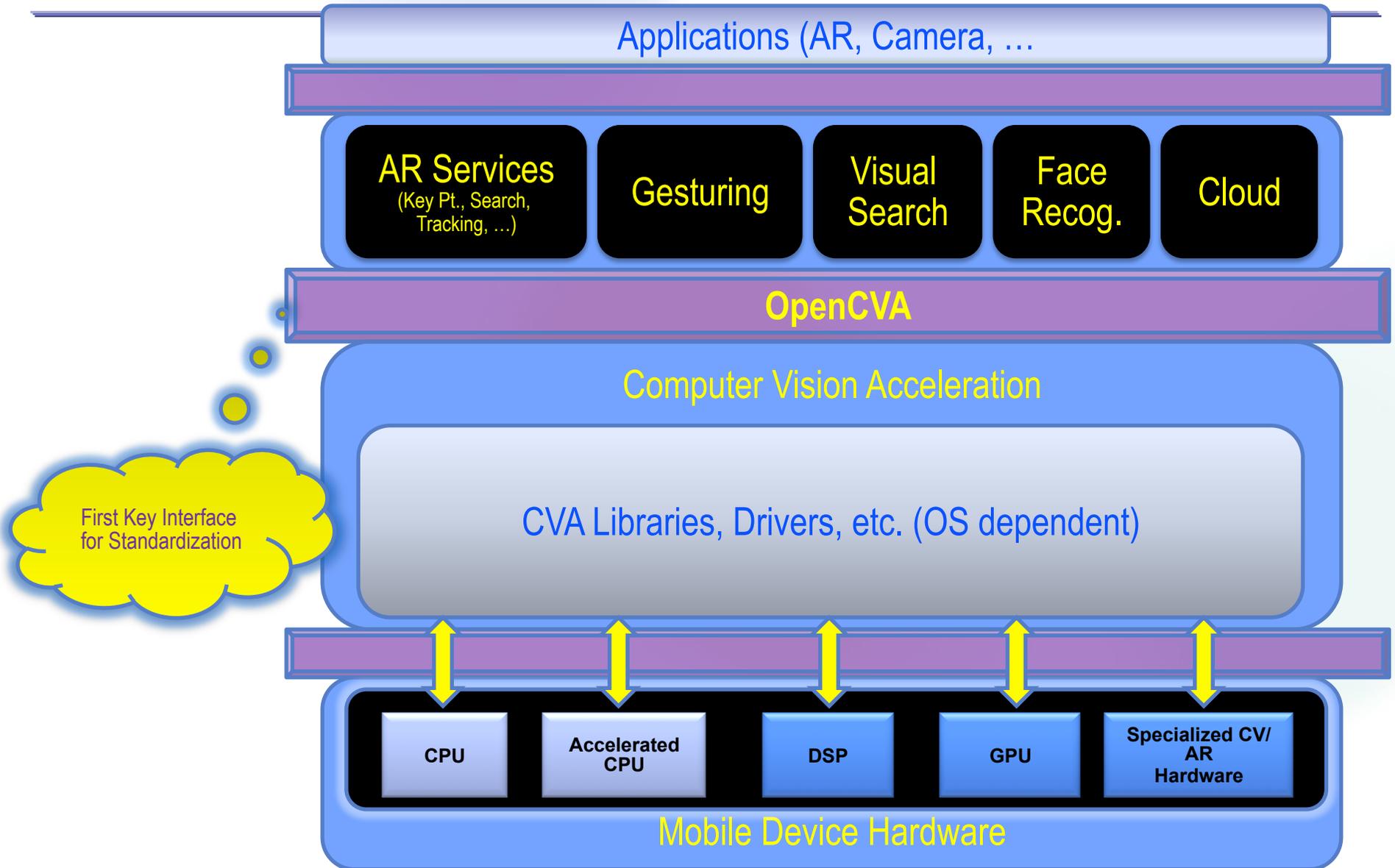
Recommended Areas of Focus

- Mobility
 - Embedded devices
 - Low power
- Visual augmentation
- Emphasize capabilities that make rich AR feasible on practical devices
 - E.g., hardware acceleration of key AR functions
 - Cooperative APIs that co-exist with other gaming and multimedia APIs
- Platform/OS independent
- Support for rich augmented data types (multimedia, gaming, hypertext)

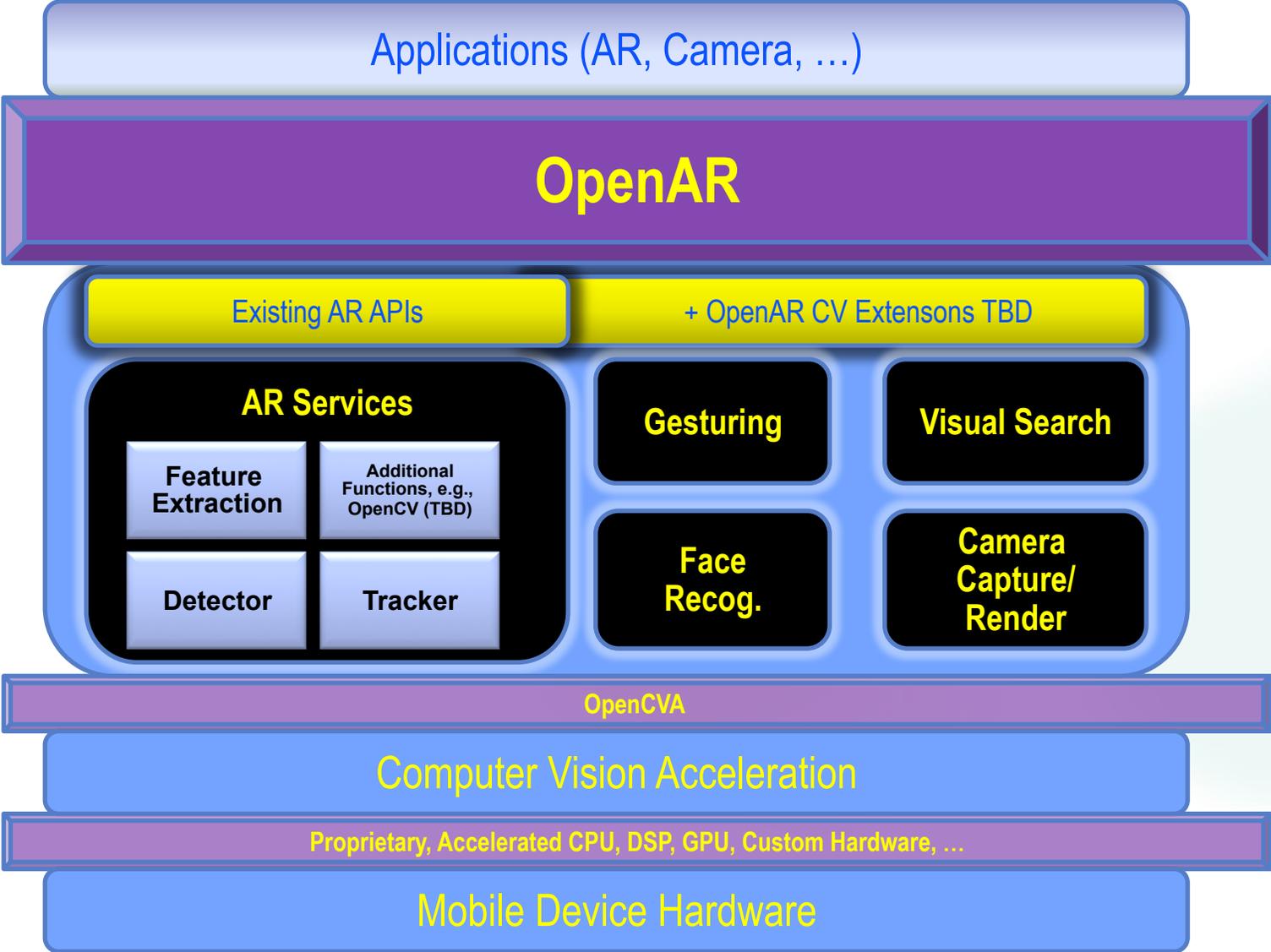
AR Standardization – Key APIs and Interfaces



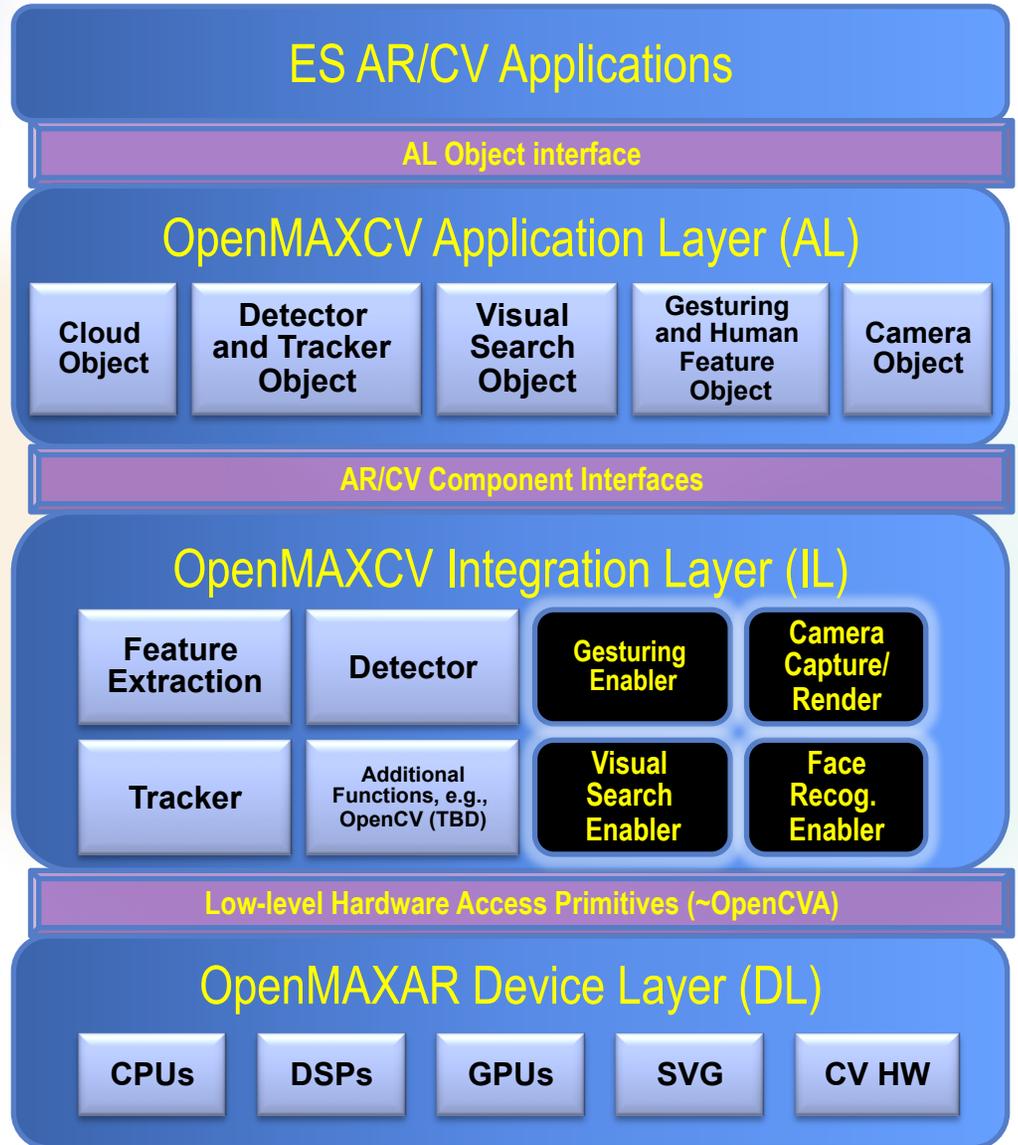
Priority 1: OpenCVA



Priority 2: Higher Level CV Services



Khronos OpenMAX-like Architecture for AR/CV



Role of Mobile Broadband Service Providers in AR

- AR has only recently become feasible on embedded devices
- Must establish an industry focus on:
 - **Mobile AR**
 - **Low-power, Embedded** devices
 - **Practical** implementation constraints
 - **Time-to-market**
- Voices of mobile service providers is essential:
 - Priorities of work
 - Use cases
 - Functional requirements

OMA's Role in AR

- AR is a highly specialized field
- Many standards organizations will address small parts of the problem:
 - Khronos – CV and AR acceleration APIs and possibly embedded module architecture
 - W3C – HTML5/Javascript bindings, other web interfaces?
 - MPEG Forum and others may address specific component technologies at some point
- OMA is a good forum for unifying the inputs and viewpoints of mobile system operators and vendors
 - Use cases, functional requirements
 - Message: **Mobile, Low-power, Practical, Time-to-market**
- **Many key components of AR are outside of OMA's scope**
- **In our view, it is unlikely that OMA could establish sufficient AR/CV expertise (and participation) to *effectively* address AR architecture or detailed component specifications**

Specific Recommendations for OMA

- OMA should continue to address the key characteristics of AR/CV that are essential for mobile embedded devices
- Address use cases and functional requirements
 - Complete first version quickly
 - Continue to refine in response to industry evolution
- **Generate awareness and participation of OMA members, particularly mobile system operators**
- **Establish liaison relationships with key organizations that will be generating component specifications/standards**
- **Actively feed use cases and functional requirements to those groups**
- **Actively respond to deficiencies and holes in industry standards for AR/CV (de facto and actual published standards)**