Strategies for the Creation of New Network Services

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NTT

Agenda

- Introduction of NTT and R&D
- Valley of death in Service creation
- How we are creating new services ~ Framework and Tools
  - Service model
  - Work field Portfolio
  - Three type of purpose
  - Service factory and Cross farm(XF)
- Summary

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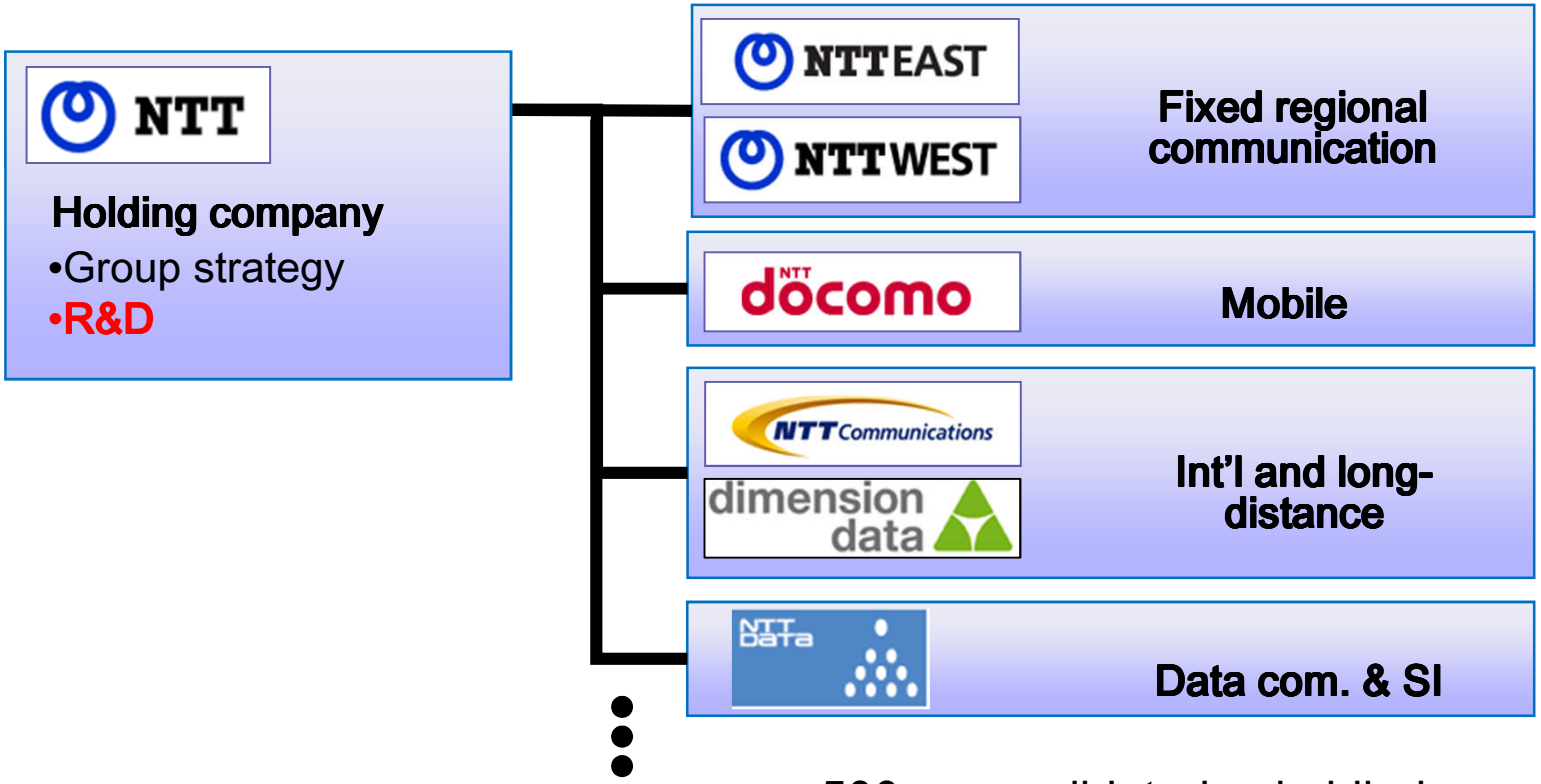
NTT group and R&D

- Fixed and Mobile operations have to be separated in regulatory reason.
- R&D in holding company develops and proposes cutting-edge technologies to operating companies.



500+ consolidated subsidiaries

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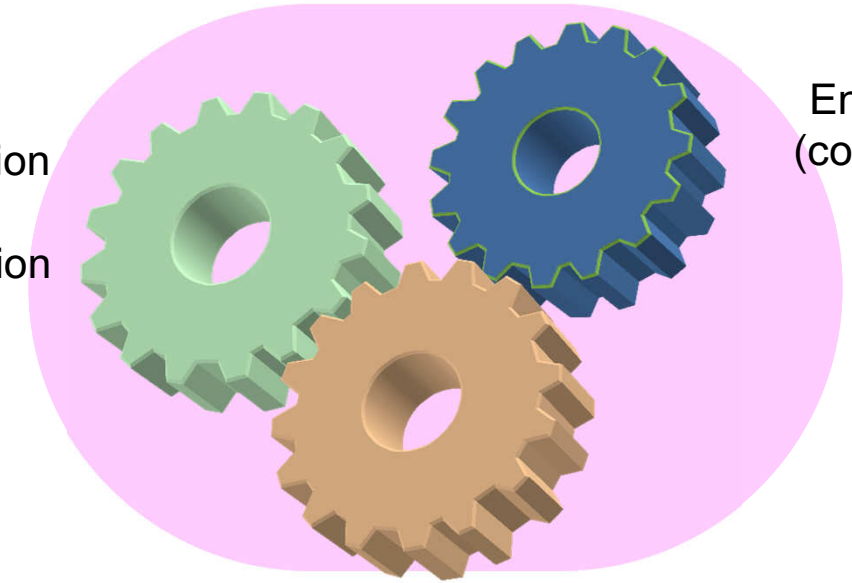
Strategy project for Service and Technology (SST)

- NTT R&D has launched SST since Aug. 2011.
- Its mission is harmonized management of below three R&D activities for service creation.



Open innovation
and
Tech. evaluation

Engine development
(core technology R&D)

Service visualization(prototyping)
and service trial

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Valley of death

Individual product

Optical parts, Devices, and Material, etc

Commercial production

NW infrastructure

Optical access, core nodes

NTT Operating Company introduction

Services

Open innovation

Core-tech. & engines

assemble

feed-back

Service offering (proto. and trial)

Consideration of operating company matters (e.g., regulation, etc.)

(rough) req.

Service commercialization

1st

2nd

R&D activity

Service promotion activity

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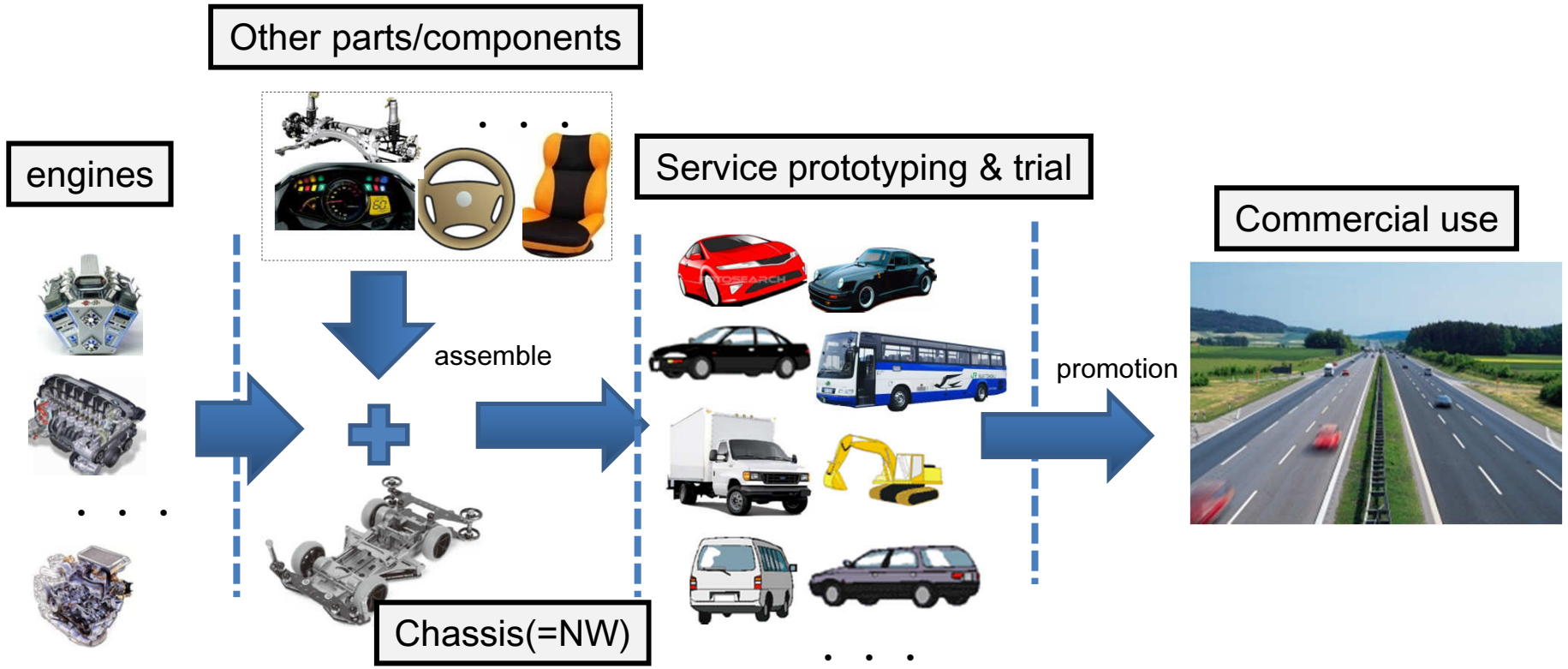
Service visualization ~Learning from the car development ~

- Design a new concept car (new service experience & usability)
- Find and use good parts(new tech. evaluation and deep understanding of existing tech.) and procure them globally (global open innovation)
- Build a stable(core competence) chassis (carrier service-oriented)
- Provide a series of cars on a common chassis (architecture & platform-oriented)



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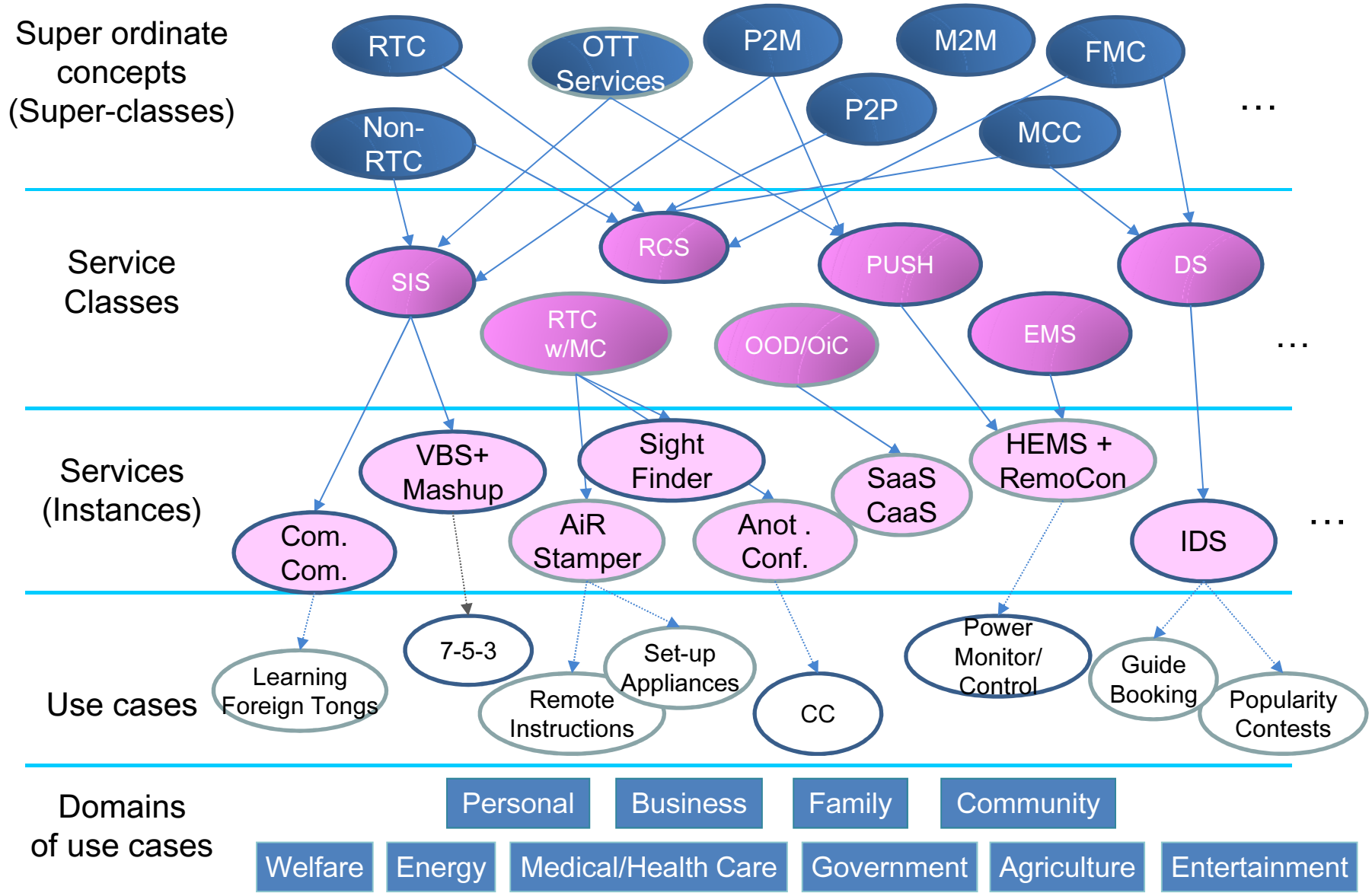
Service model ~ A conceptual hierarchy of Services



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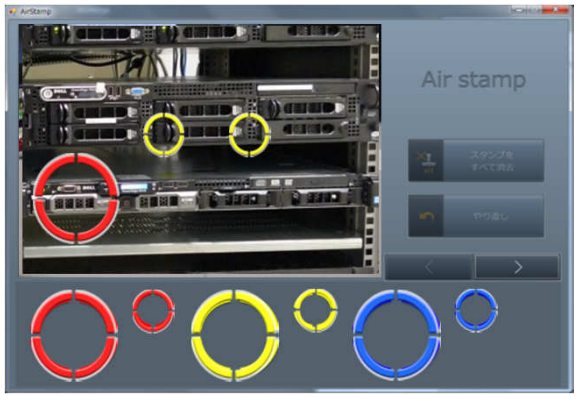
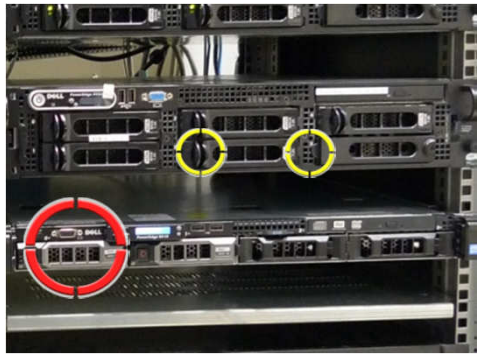
AiR Stamper

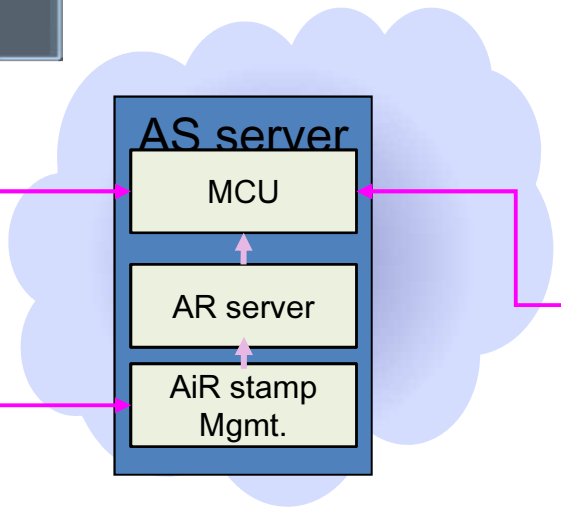
- AiR Stamper provides remote assisted communications for on-site workers using an ordinary videophone application.
- Automatic tracked “AiR stamp” indicates the point for action.

Instructor



On-site worker





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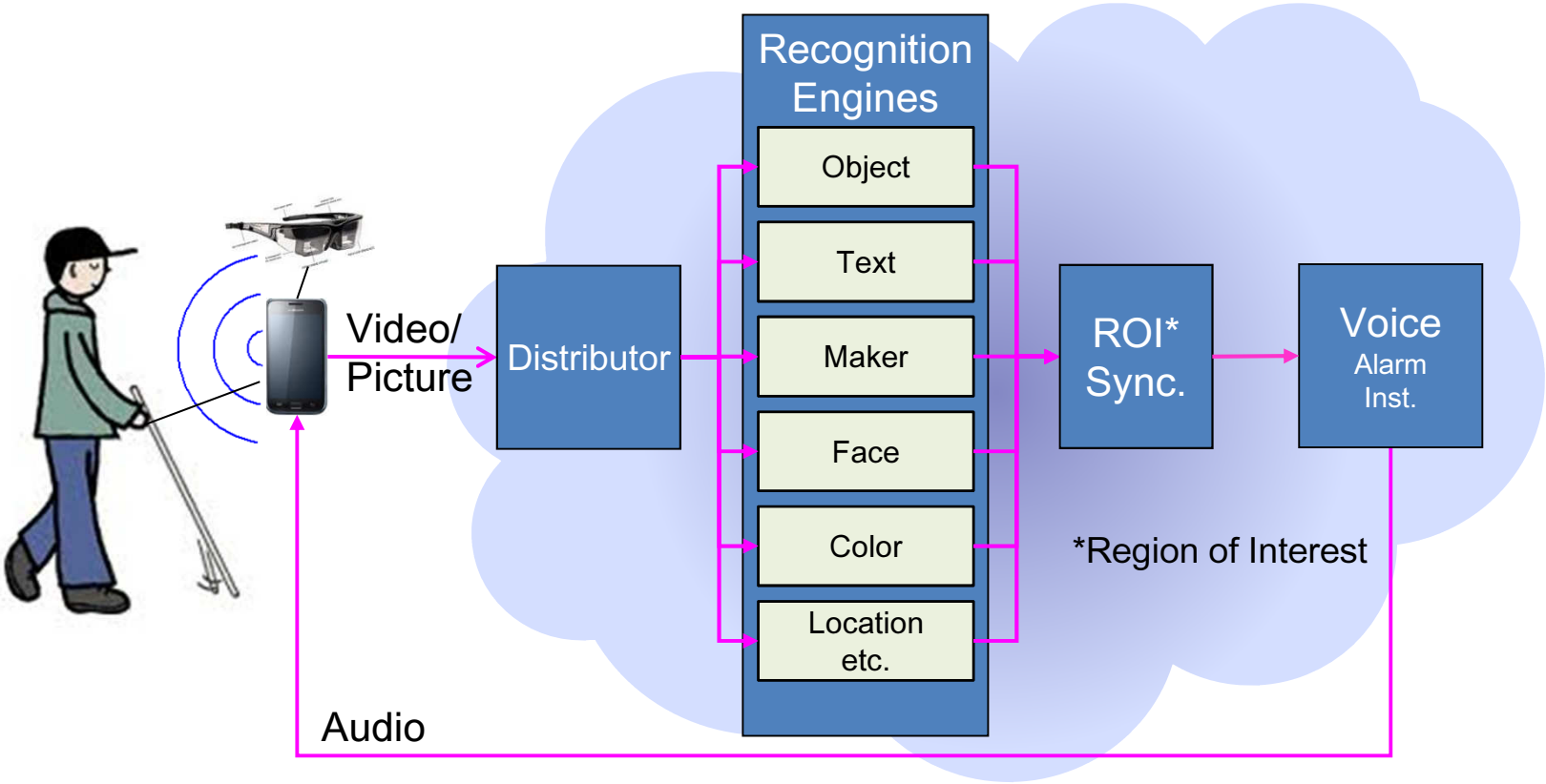
Sight Finder

- Sight Finder can assist such as visually impaired, aged, foreign, and special-needs people using sight information.
- The architecture consists of cloud-based recognition engines running in parallel.



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Sight-X ~Sight Finder variation

- Docomo's commercial service, "Shabette(Speech)-Concierge" is a Siri-type speech recognition based Q&A service.
- Sight-X adds real-time image recognition capability to the above. User can get additional information of already registered object images.

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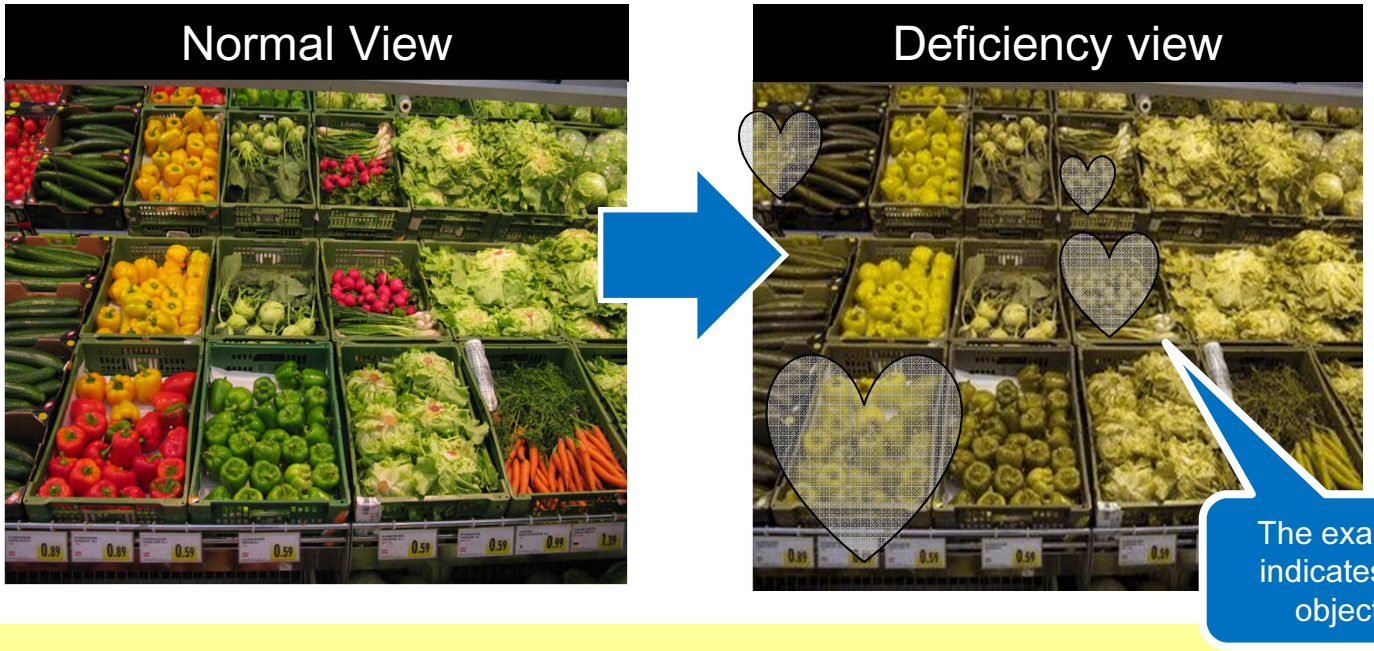
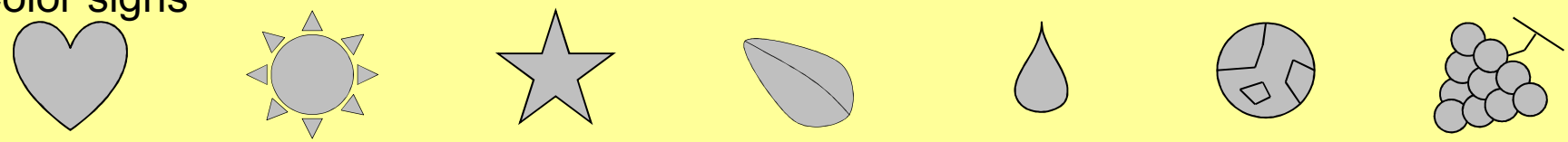
Iro-coco (Color indicator) ~Sight Finder variation

- “Iro-coco” is a service for color-vision deficiency people. It indicates specified color objects by displaying color signs.
- Multiple color objects can be simultaneously indicated as well.



Color signs



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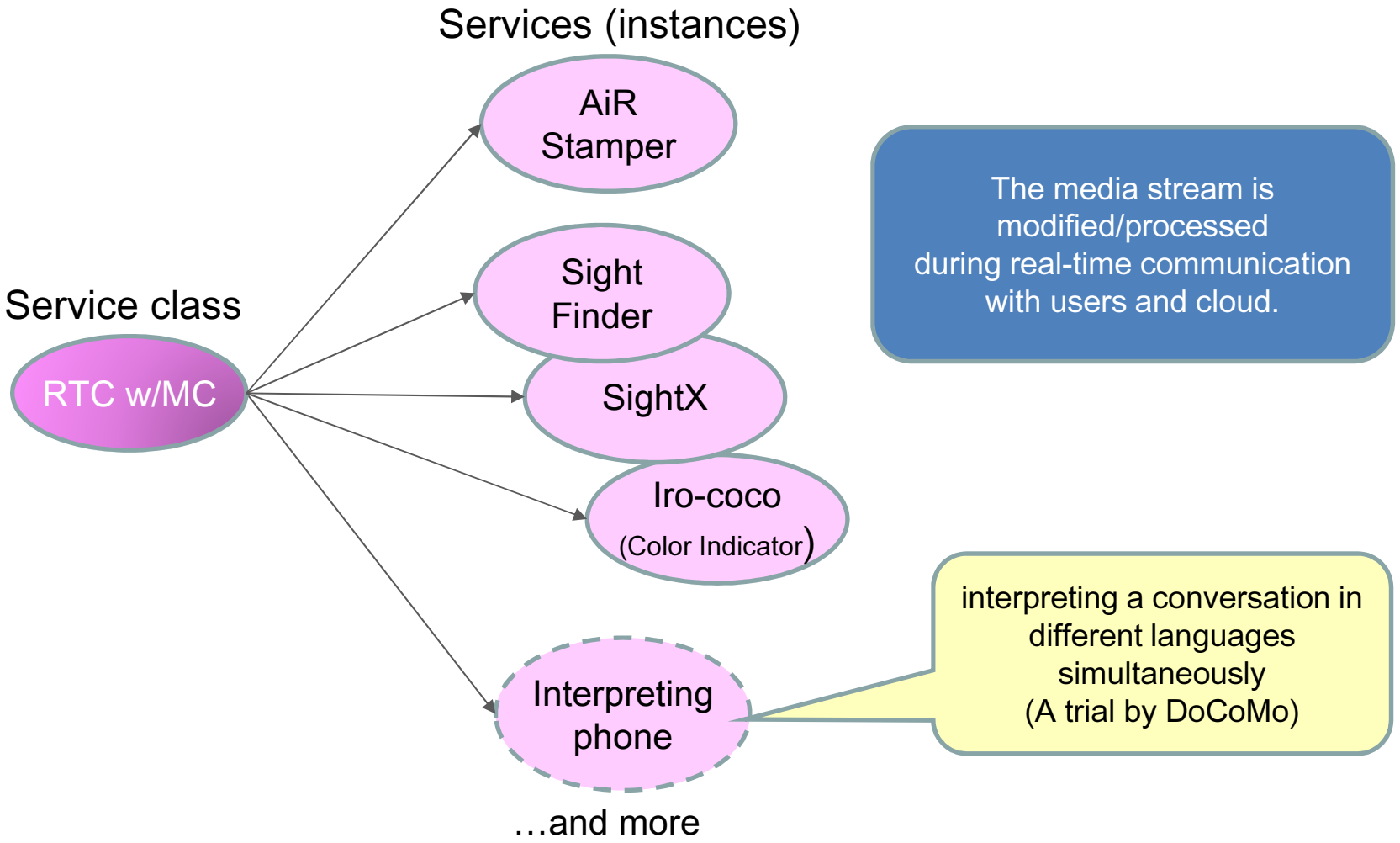
Service Class broken down into Service instances

- All services(instances) are derived from the service class “Real-Time Communication with Media Conversion(RTC/w MC) ”.



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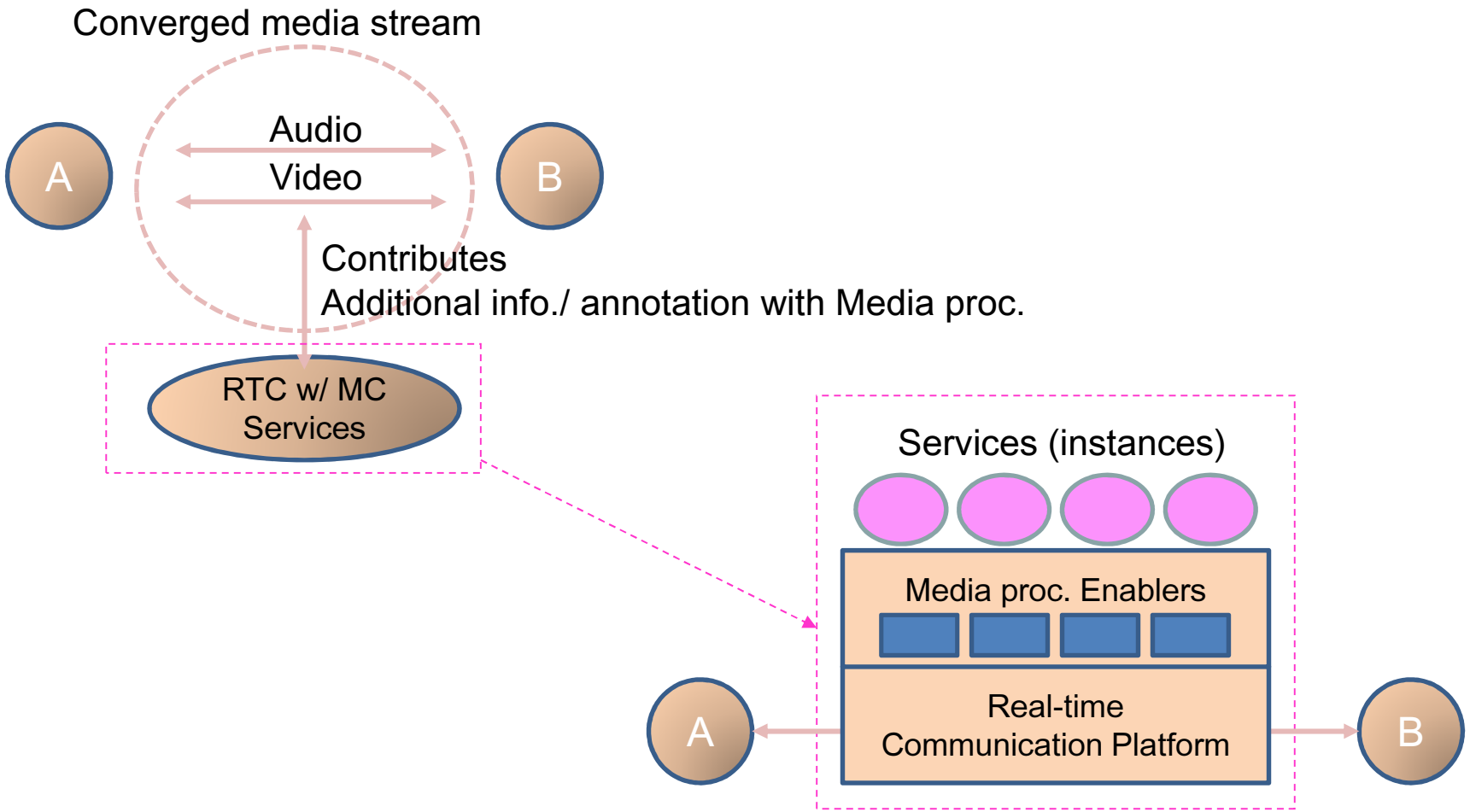
Architecture for RTC with Media Conversions



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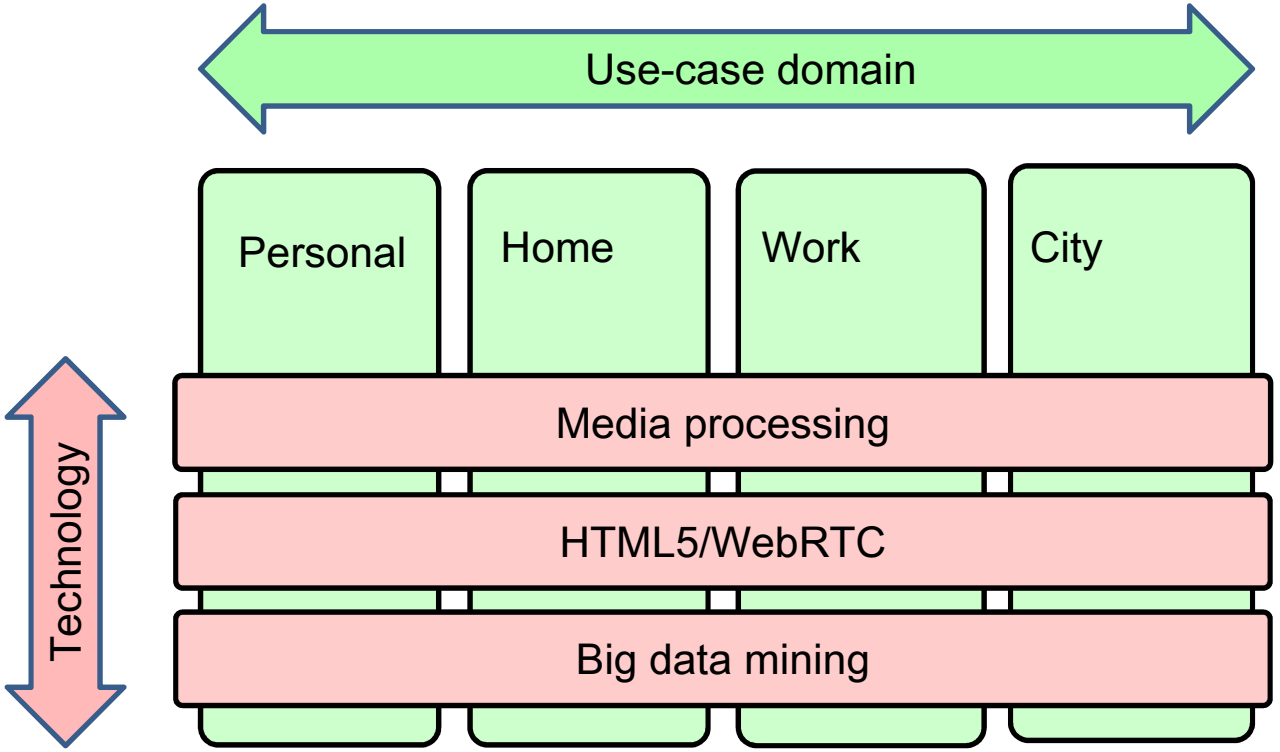
Work field Portfolio

- The work field portfolio gives an overall view of created/creating services.
- It also allows combinational considerations for technologies and application domains.



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HTML5/WebRTC impact on Carriers

1. Possibility to restructure current OTT driven App/Contents markets
2. New business opportunity using its scale merit of “One-source-multi-devices” nature
3. Providing novel-UX services combining with RTC and Web

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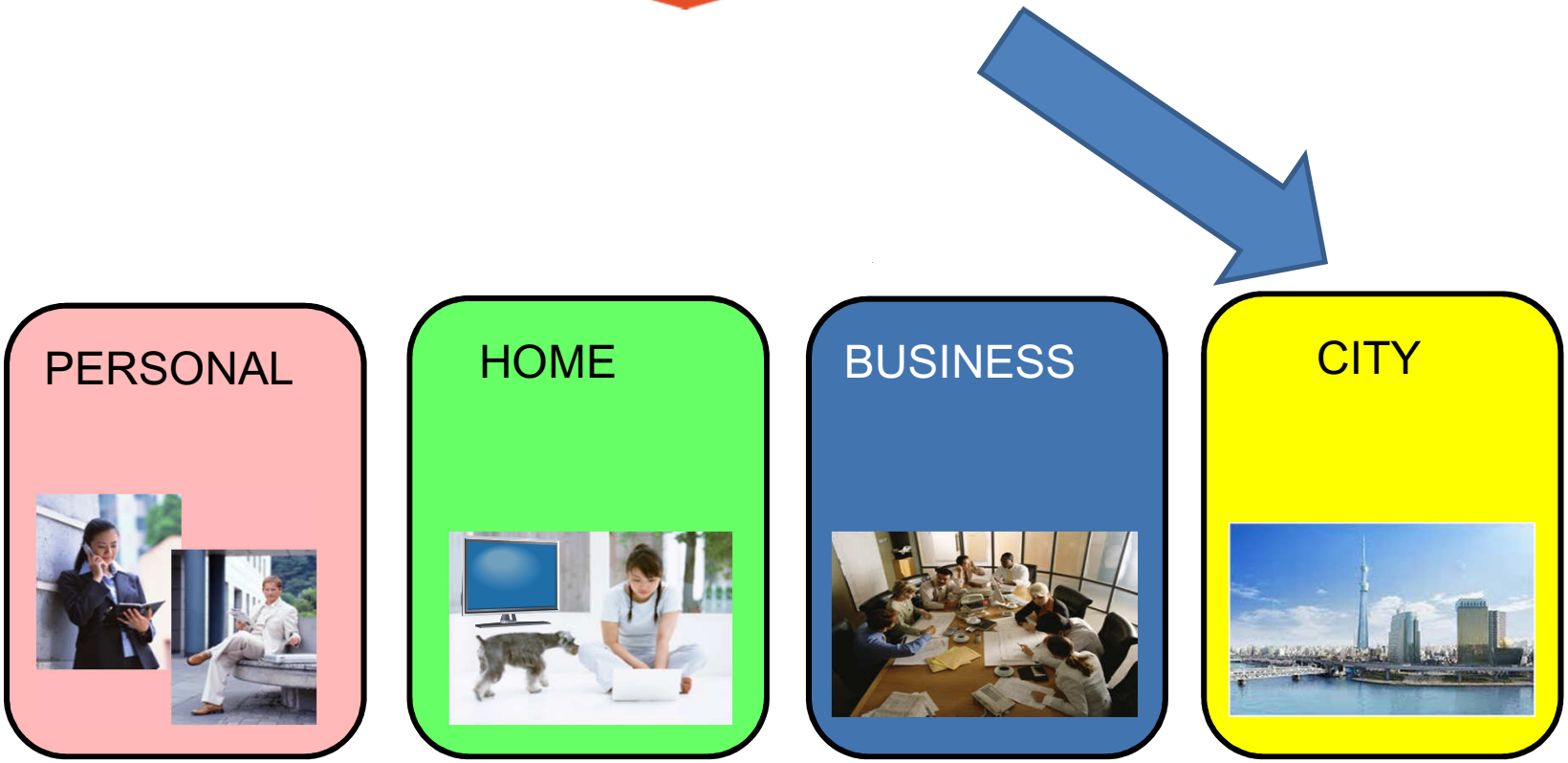
HTML5/WebRTC applicable domain



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Smart-TV + WebRTC

- Smart-TV+WebAPL market would be a potential area.
- WebRTC enables communication capabilities to the Smart-TV.

	Native APL	Web APL
Smart-phone, Tablet	Android (Google) iPhone(Apple) Au smart pass(KDDI)	D-Game(docomo) Chrome web store Firefox Marketplace
Smart-TV	Hikari-TV(NTT) Google TV Apple TV, iTV Samsung Apps KDDI Smart TV BOX/Stick	Next target

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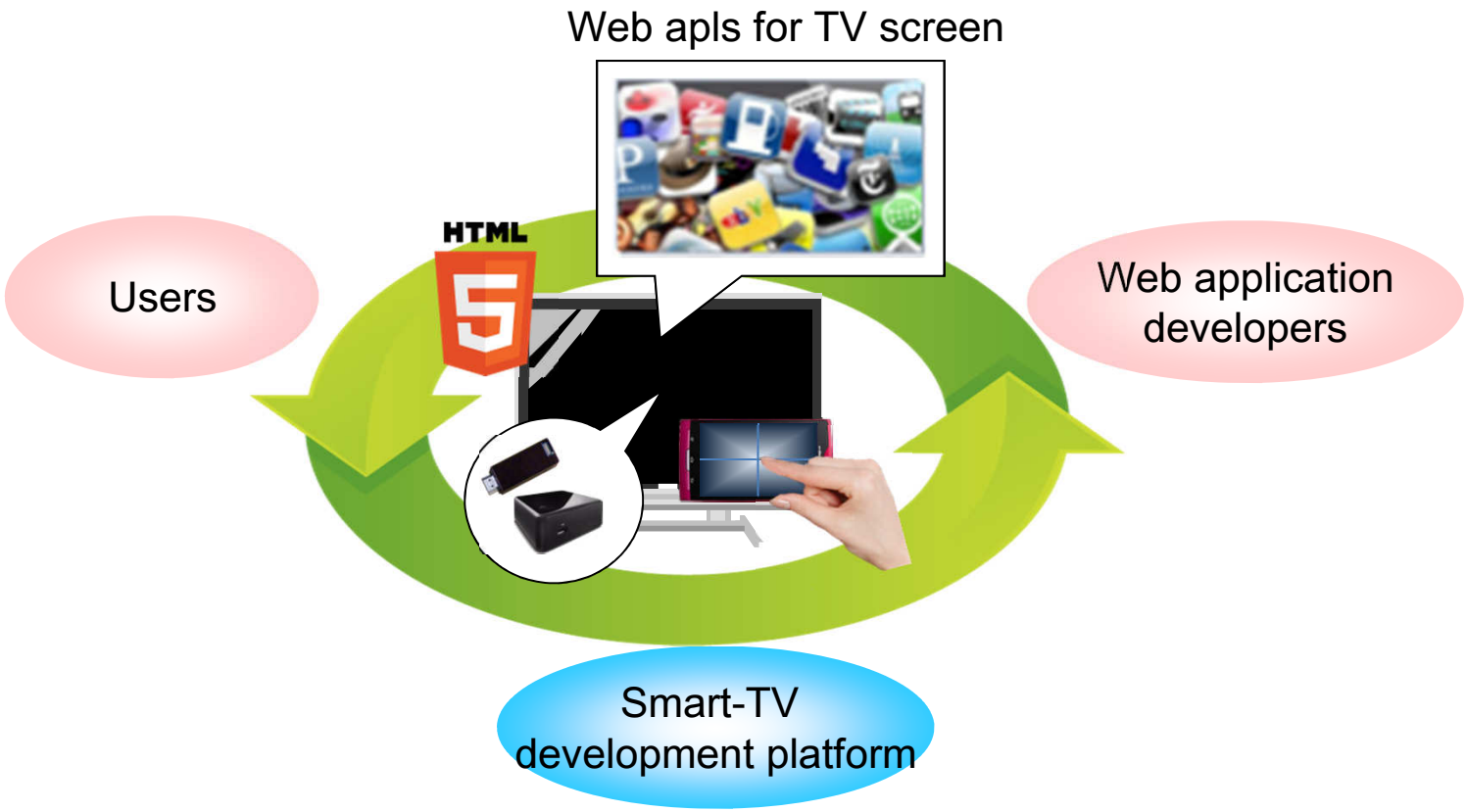
Success Scenario

- The success scenario is to establish an ecosystem around carrier's Smart-TV.
- WebRTC enables Smart-TV originated smooth communications among users.



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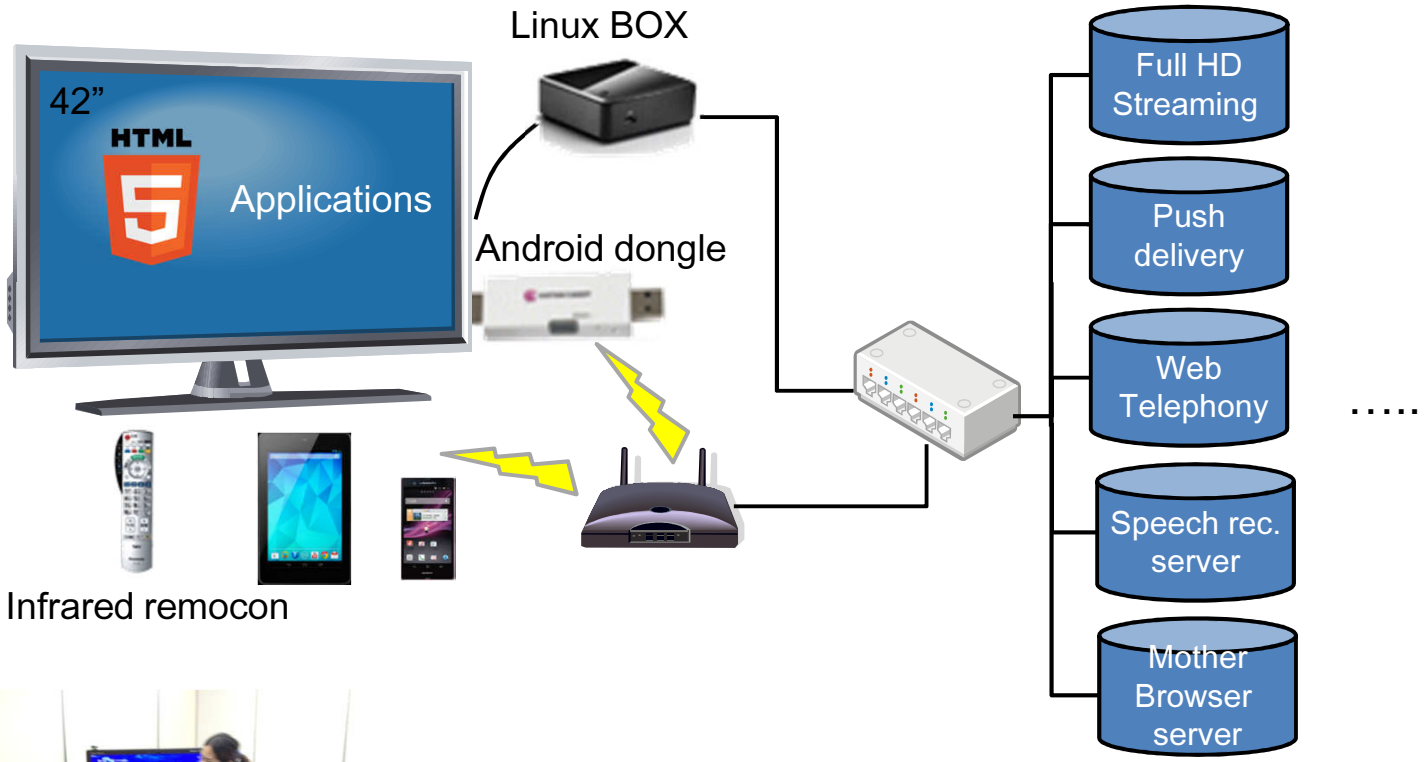
Smart TV experimental environment



Monitors

Application examples

- Voice/Text chat over TV
- Family quiz on TV
- Remote picture book reading
- Automatic alert on TV (especially for aged people)
- Calendar based regional event guide on TV
- TV watch logging and related info search (Internet)
- ……

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Service example - Remote picture book reading

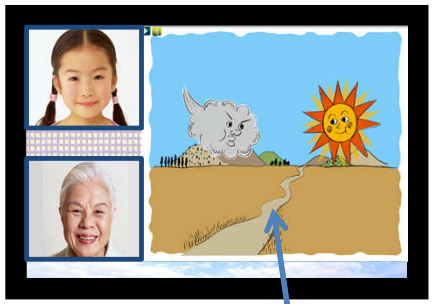
Picture book selection

TV screen

Reading text

WebRTC communication

Tablet w/ Wifi



Interactive animation

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“Informative city” concept

Everywhere you go, you can get information
- you want based on your preference and situation.
- that can only be found there.
- using your own usual device.

You can also generate information
- for someone in the same area.

We aim to at “Informative city”, where such information services are filled with.

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Wifi-LBS(Location Based Service)

- Wifi-LBS can provide wide variety of location-based services to users.
- HTML5 browser and small resident program* enables Wifi-LBS.

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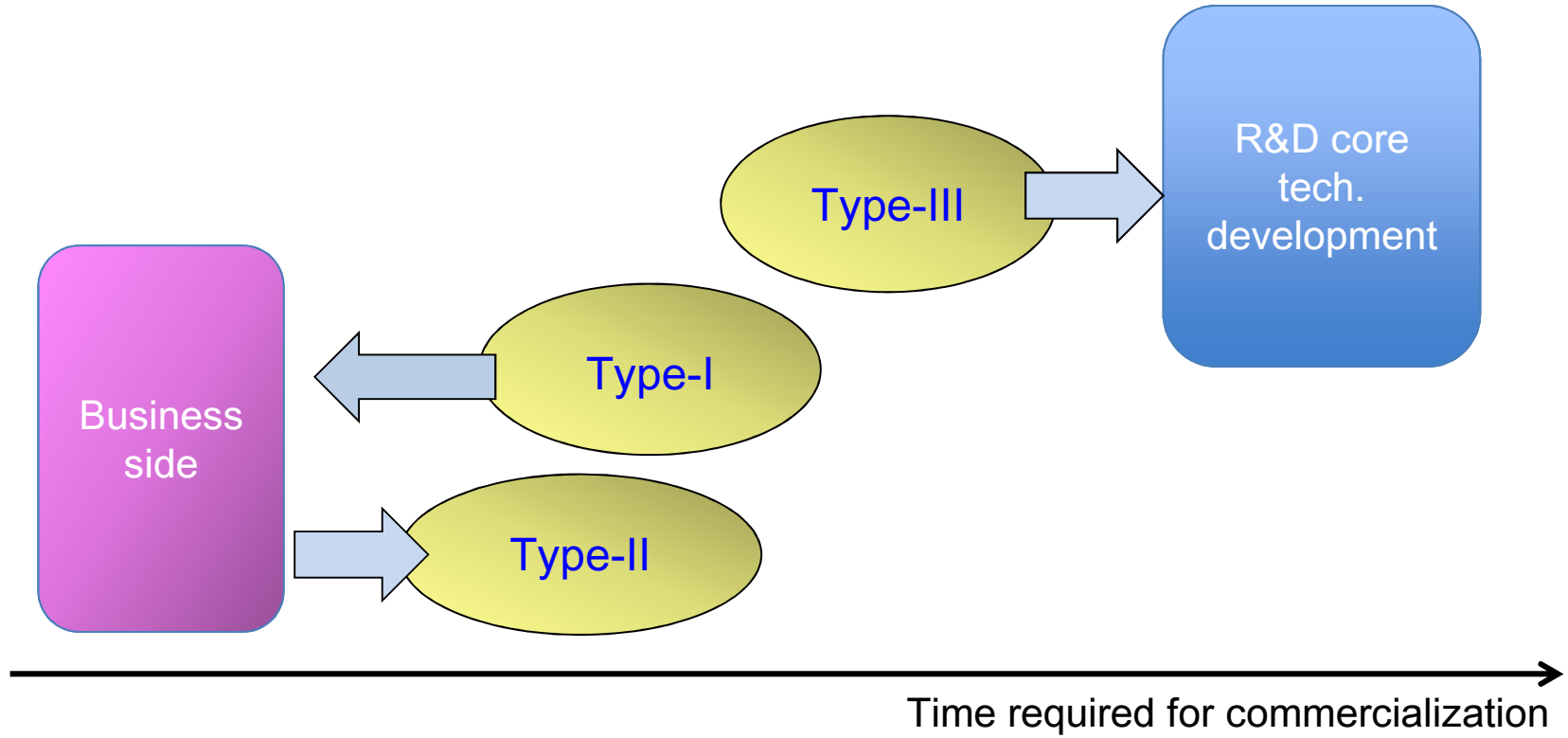
Three type of purpose

- This defines service visualization purpose and the work procedure.

Type-I: R&D proposal incorporating near-term and maturated R&D technologies
Type-II: Service visualization aimed at addressing issues on the business side
Type-III: Feedback of R&D core technology development



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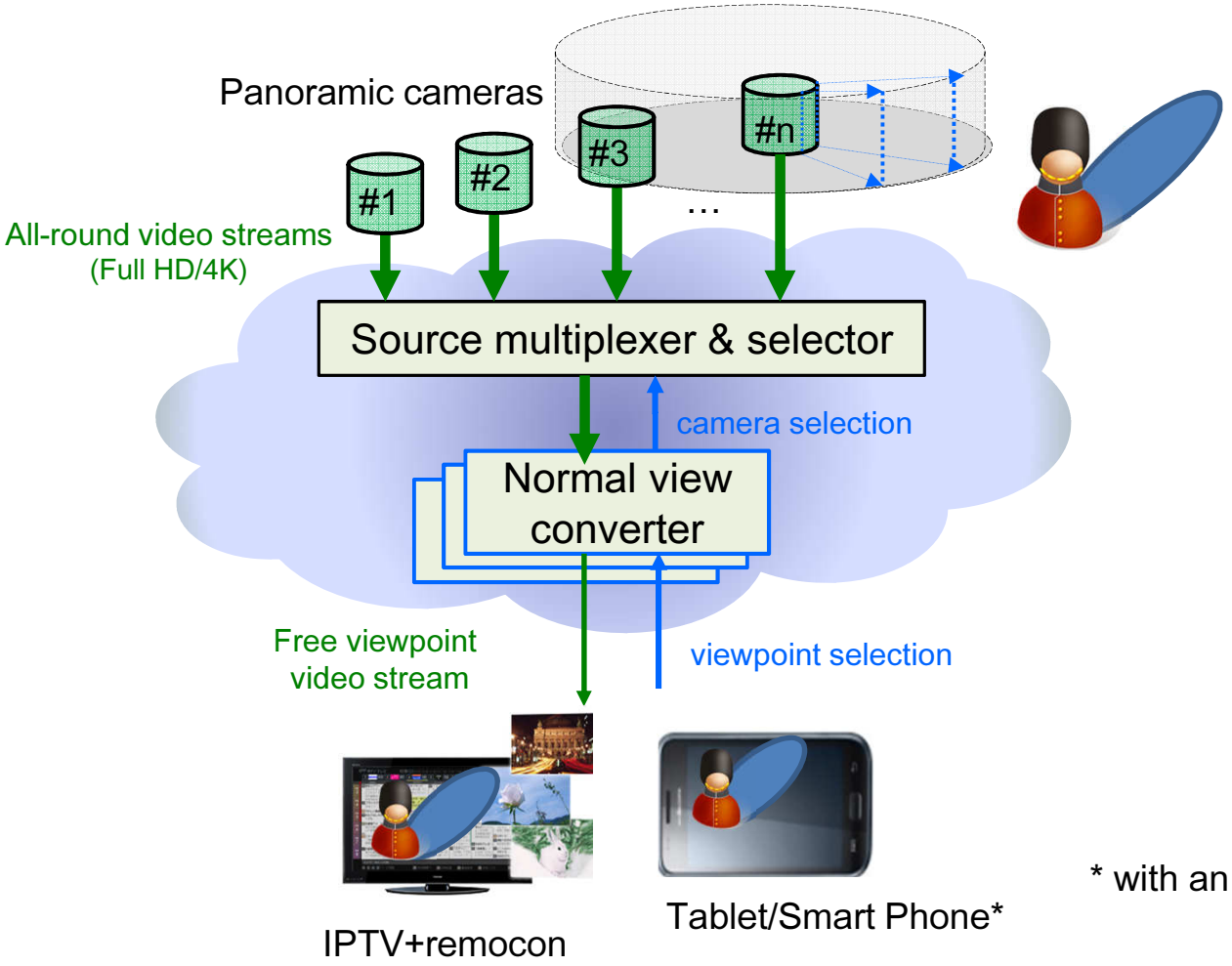
Remote Walker

- Remote Walker provides real-time & flexible view point video streaming like “walking around in the remote site”.
- We are trying to apply the HEVC technology to save the bandwidth.



* with an angle sensor

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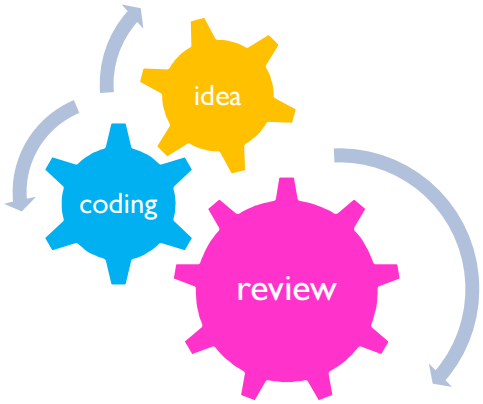
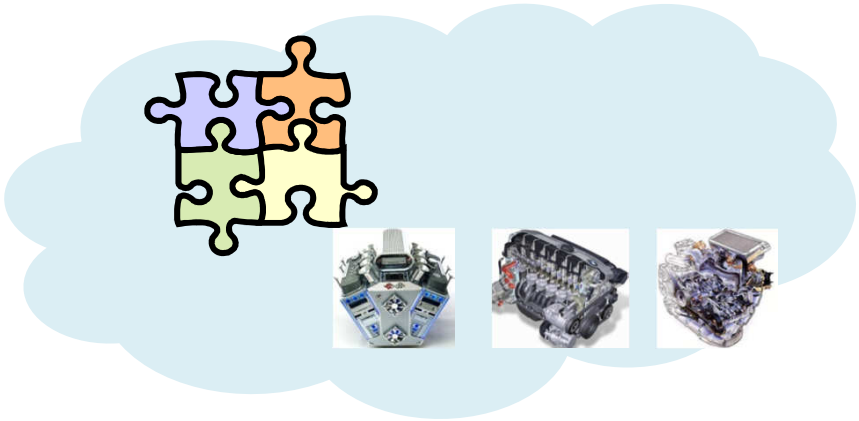
Service factory and Cross farm(XF)

- Service factory is a special team for rapid and agile-style service prototyping.
- Cross farm(XF) is a cloud–based service trial environment for collaborative work with operating companies. The XF also provides APIs of R&D developed engines.

Service Factory



Cross farm (XF)



Prototype quality → Trial quality

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Summary ~ Framework and Tools

[FW1] Service model

- Service class gives an unified architecture and enables efficient service implementation.
- Several service(instance)s can be derived from one service class, that enriches service ideas.

[FW2] Work field Portfolio

- This portfolio gives an overall view of created/creating services.
- It allows combinational considerations for technologies and application domains.

[FW3] Three type of purpose

makes it clear the purpose of service visualization and defines the work procedure.

[TL1] Service factory

- key internal organization for service visualization allowing agile prototyping

[TL2] Cross farm(XF)

- Cloud-based environment for service trial where R&D developed engines are ready to use.

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Collaborations are welcome ☺
Thank you
Contact: sst@lab.ntt.co.jp