Industry perspectives: What they need, research-wise and code-wise

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4th NDN Project Retreat

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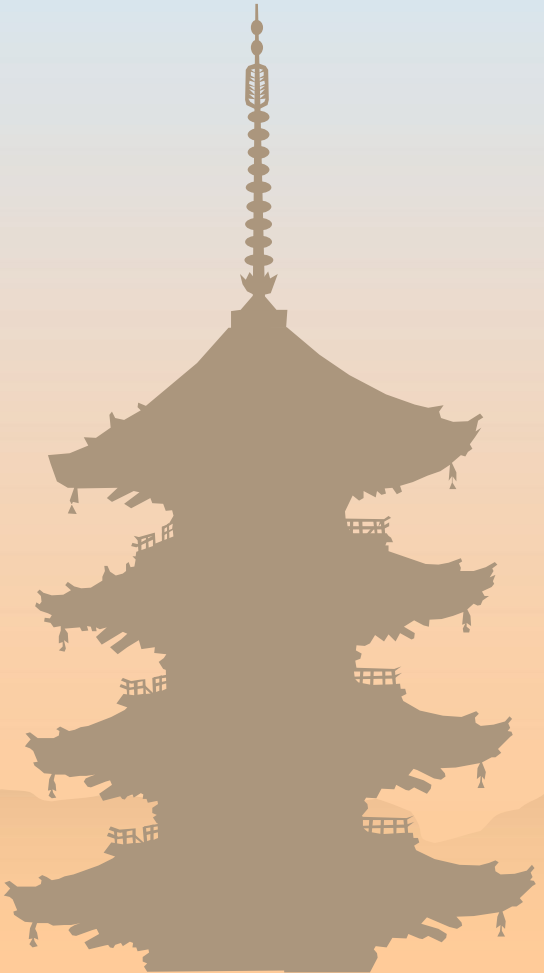
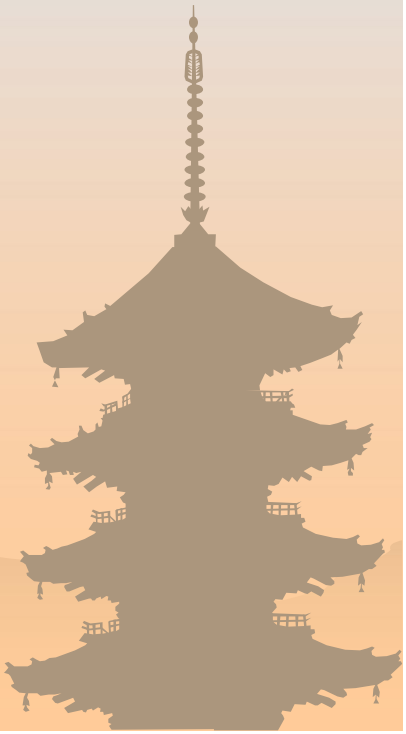


Content

- Who we are (Panasonic)
- What we did (L4)
- What we need
  - research-wise and code-wise
  - Crowed sensing



Panasonic is

- Panasonic (Maker with 300,000 employee)
  - Home appliance maker
    - TV, Camera, Smartphone, Refrigerator, Microwave, Air-con, Home bakery, Hair drier, Shaver, Car navigation, Laptop, home power-plugs
  - System solutions
    - AV system, Security Camera
    - Fax, Copy, white board

Appliances (under HEMS)


ProAV


PA


Security Camera


Copy


Fax/iFax

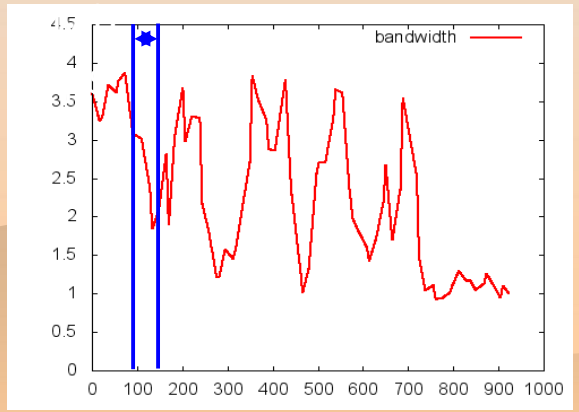

White Board


TV conferencing

Network Engineer of Panasonic R&D

- We are L4 engineers for conferencing (real-time, low delay) of Panasonic R&D

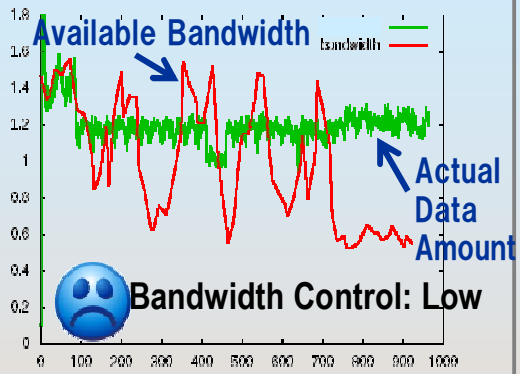
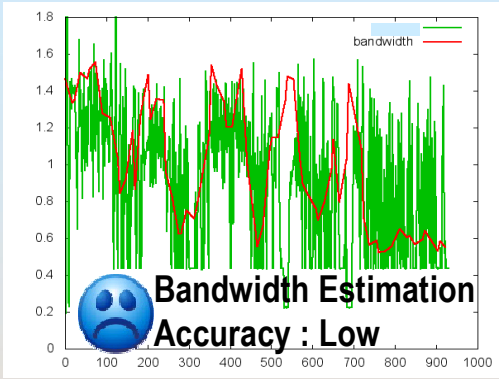
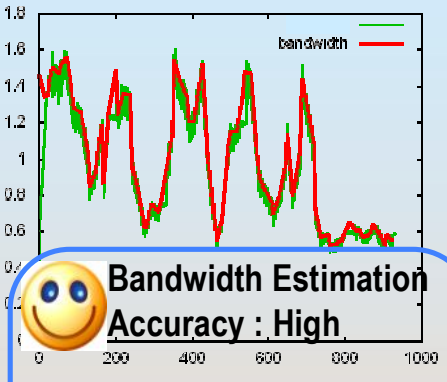
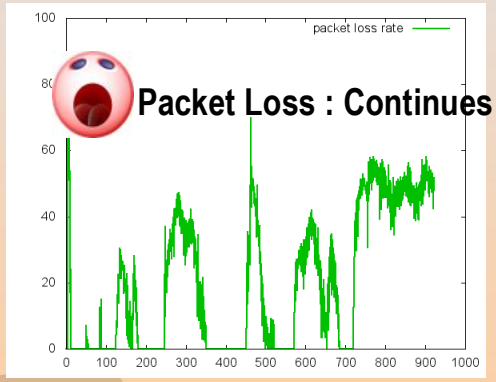
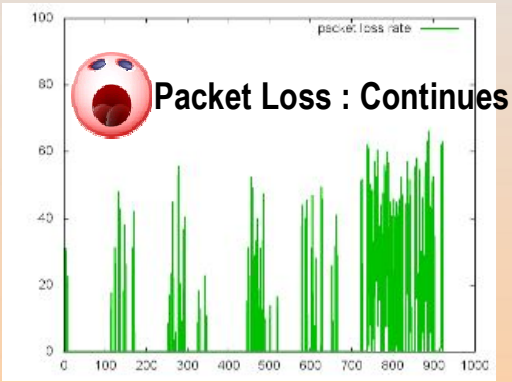
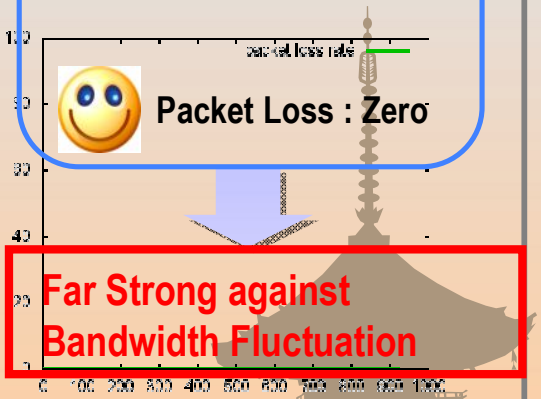
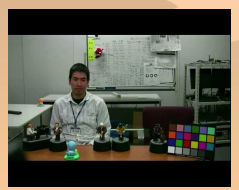
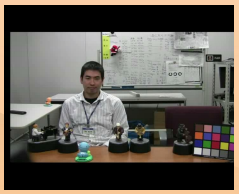
TV conferencing



Bandwidth Estimation

Hi-Accuracy bandwidth tracing

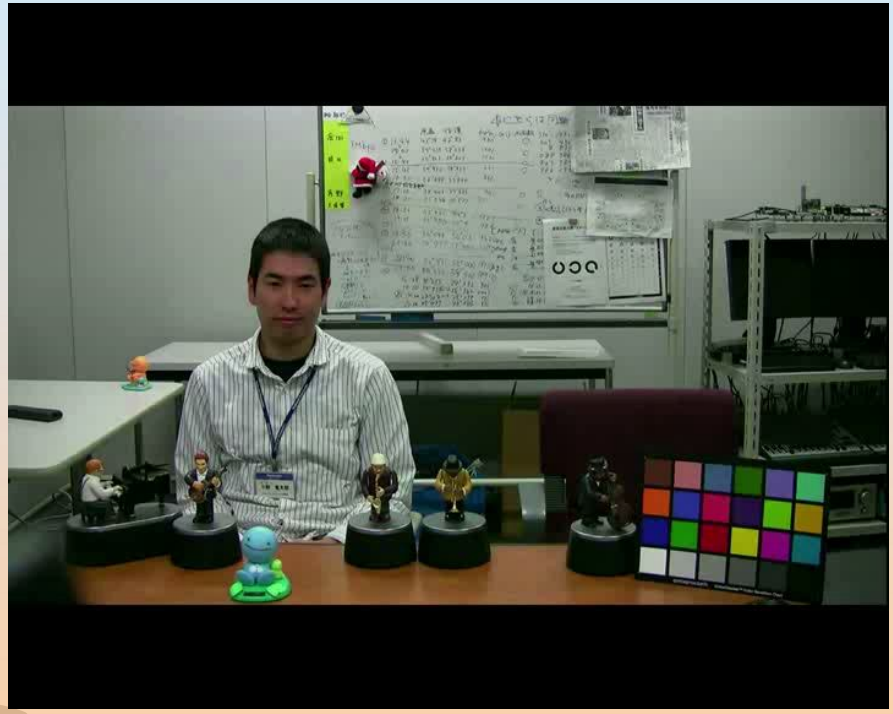
Available Bandwidth
Actual Data Amount

	Brand A	Brand B	Panasonic(V3.0)
TX Bandwidth			
Packet Loss*			
Comparison Video	 Check the actual video!	 Check the actual video!	 Check the actual video!

※Packet Loss Rate (Exclude Error Correction Recovery)

Comparison video between product of company A and Panasonic

Brand A



Panasonic

- Accurate the available bandwidth estimation and high frequency rate control of encoder using TFRC + RTT variation.

What we need, research-wise and code-wise

Sensor networking
as expected driving application

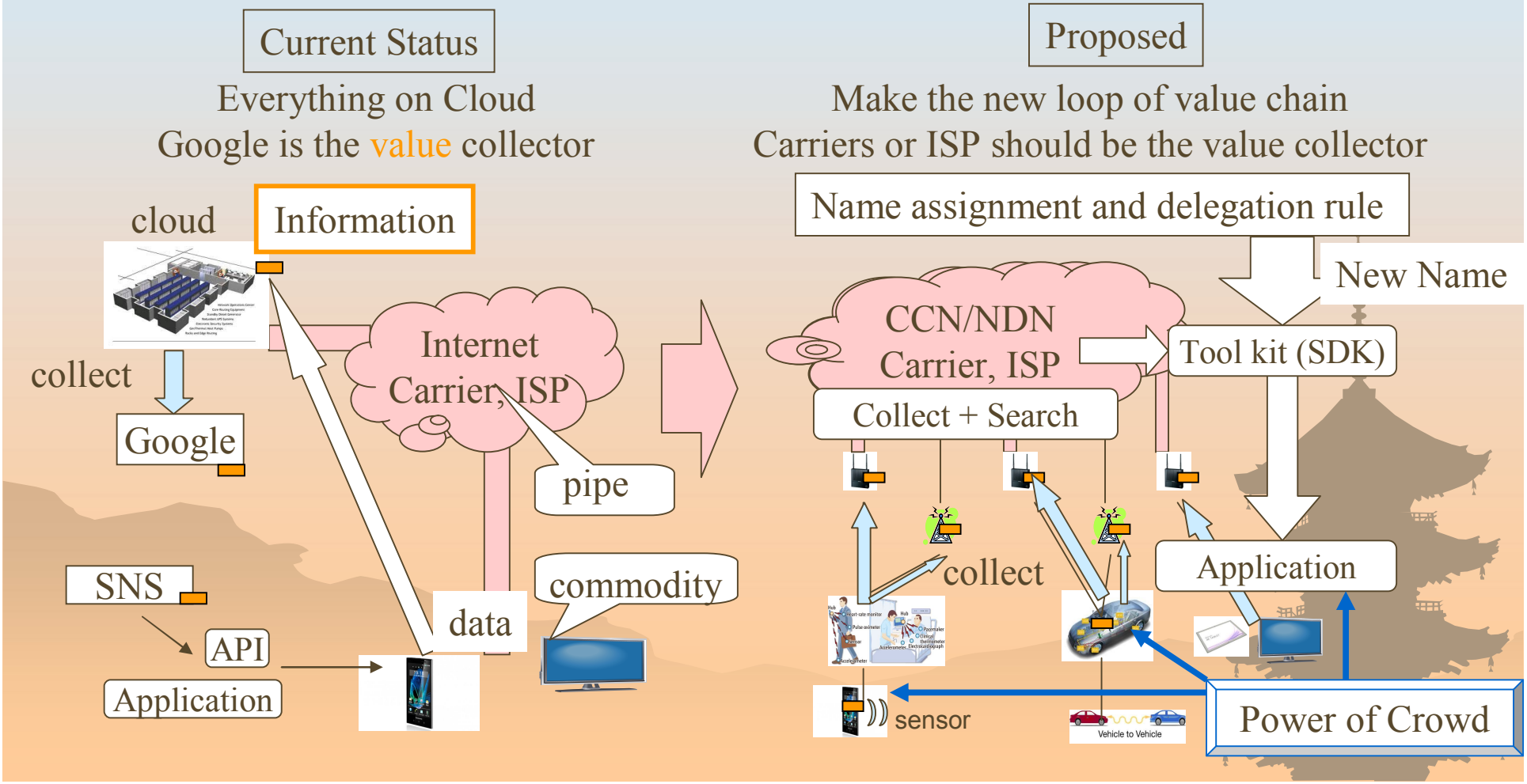
- Crowd sensing
  - Example
    - Waze
      - car traffic congestion
    - Nike fuelband
      - activity monitoring sportsware
    - CCNx Web-app ‘SHOUT’ @ ccnxcon2013
      - Share comments between neighbors

Features of Crowd sensing

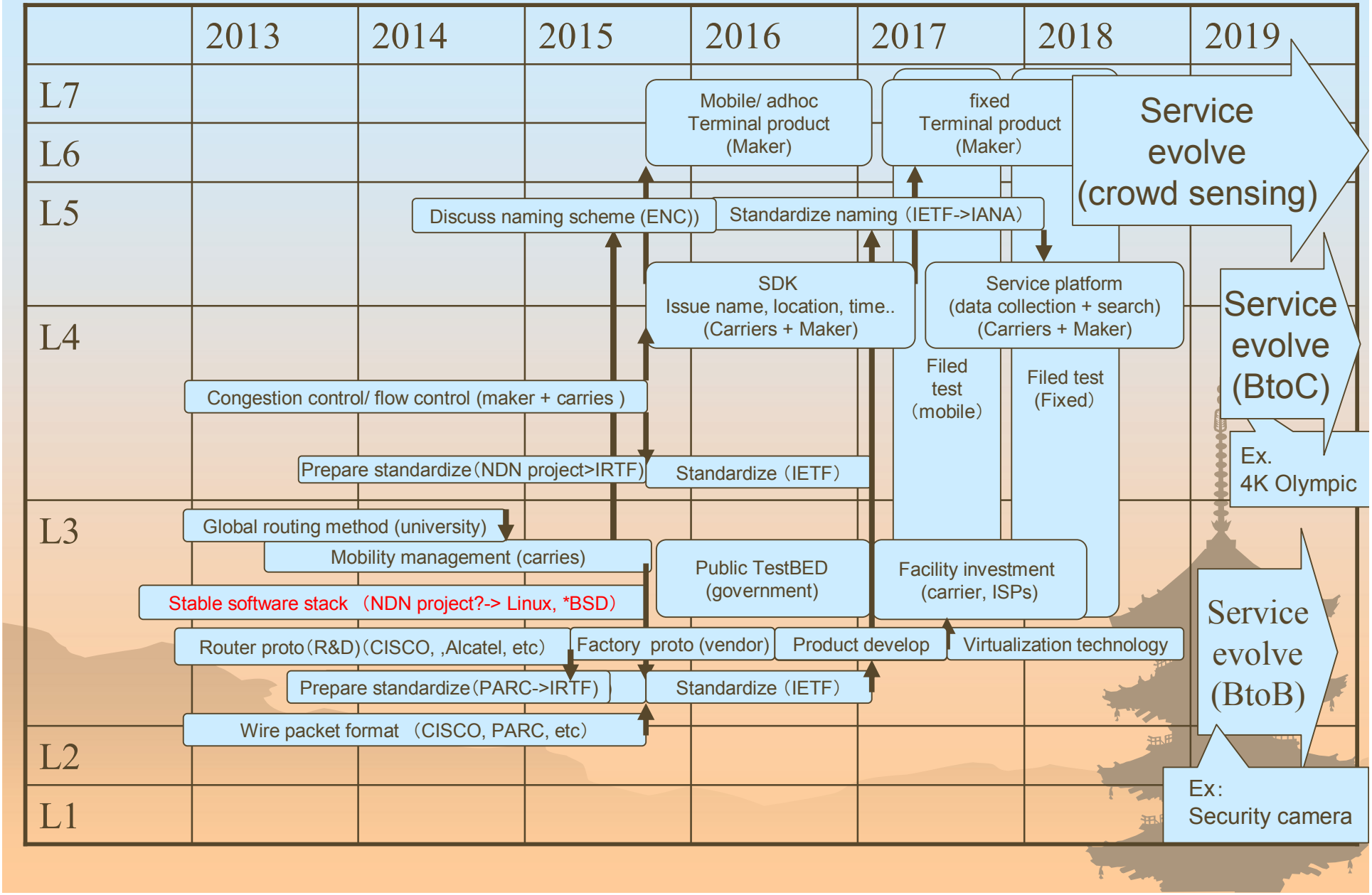
- Collect data and make valuable “Information”
- Computing and Communication
  - of the people (crowd), by the people for the people
- by the people
  - New application is being made
  - Evolving continuously naturally if platform exist

Proposal: change the value chain

- Name will be used in terminal (application)
- To realize this, stable open source is necessary



Deployment milestones



Conclusion & Discussion

- Crowd sensing is the expected driving application
- Currently google (or SNS provider) suck the value of "Information"
  - As the result
    - carriers becomes "pipe" provider, maker becomes looser
- Change the value chain focusing on power of crowd. Because essentially data is generated at the edge terminals. Carriers or ISPs can collect it directly
- To realize this stable open source is necessary.