

Harness the Power of IoT in Aquaculture



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Internet Initiative Japan

- **Founded in 1992, when Internet was born**
- **25+ years as the independent ISP**
- **15+ years as the Cloud Service Provider**
- **10+ years as the Mobile Service Provider**
(MVNO/MVNE)



Expanding from ISP into other business areas

Network Business

3,373 Gbps

Total bandwidth of access service subscriptions

Cloud Business
1,690 firms
Number of cloud-related customers



Security Business
No.1 share

Web security services

Source : ITR market research report "ITR Market View : Cyber Security Measures Market 2016"

Integration Business
60.4 billion
System integration sales

Mobile Business
2.44 million lines
Total subscription of Mobile lines

*System integration sales : FY2017

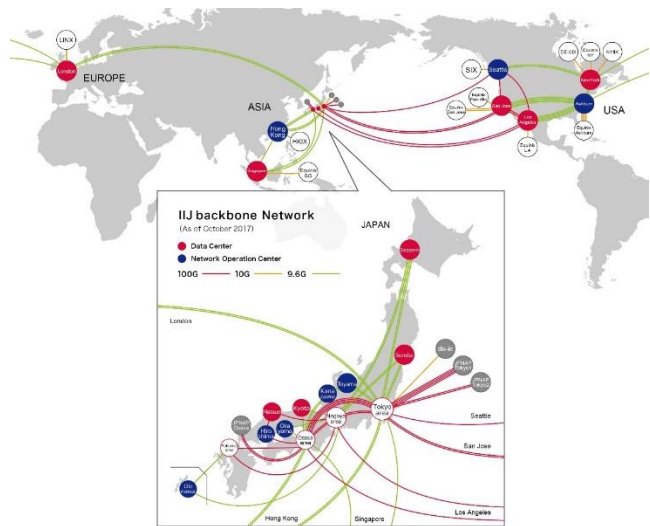
*Others : As of June 30, 2018

Overseas Business

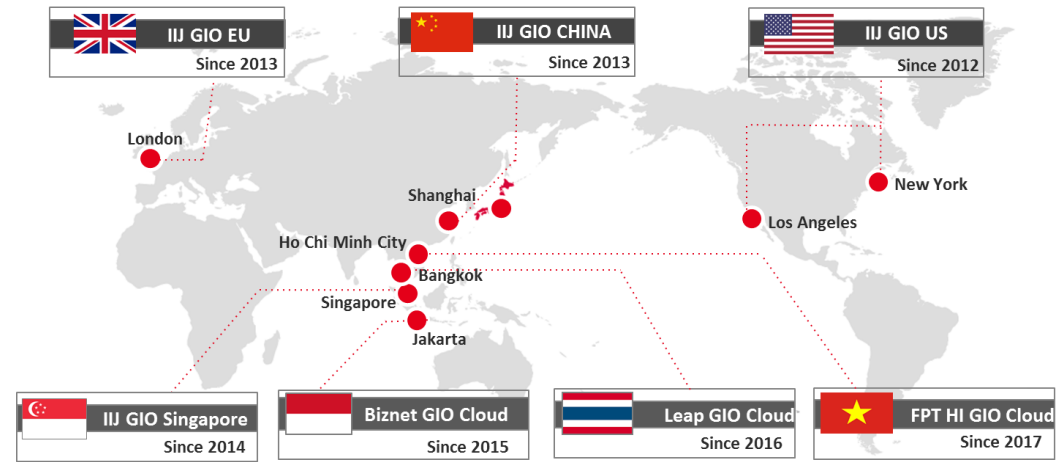
Leverage Expertise in Infrastructure Technology;

Robust Backbone Network & Worldwide High Quality Cloud Services

— Backbone Network —



— Cloud Services —



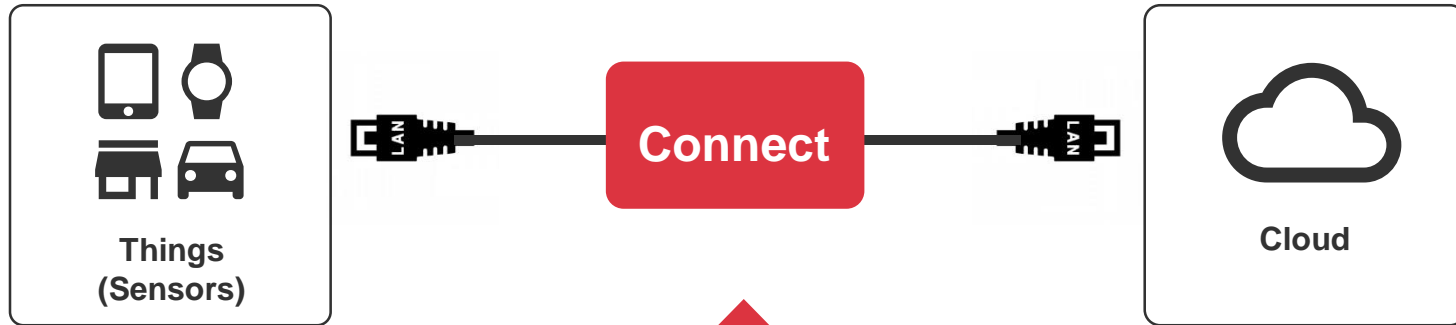
— Container type DC —

IIJ Container type DC Selected as Lao's First National Data Center



Connectivity

Providing various types of connectivity since 1993, when we started Japan's first commercial Internet connection service



✔ Device management

patented cloud based device management technology



✔ Mobile service

Leading MVNO in Japan, started Japan's first full MVNO service in 2018



✔ Cloud service

Providing wide range of cloud service from our own "IIJ GIO" to other popular services (AWS, Azure etc.)

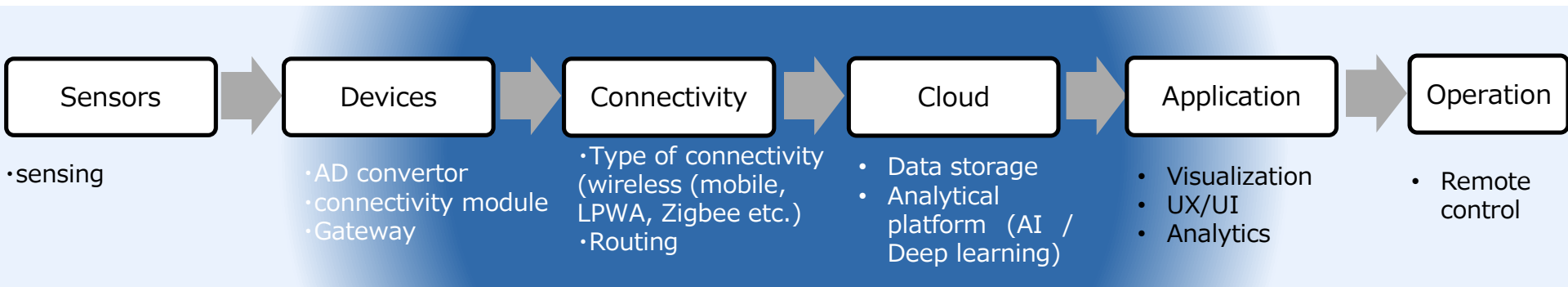
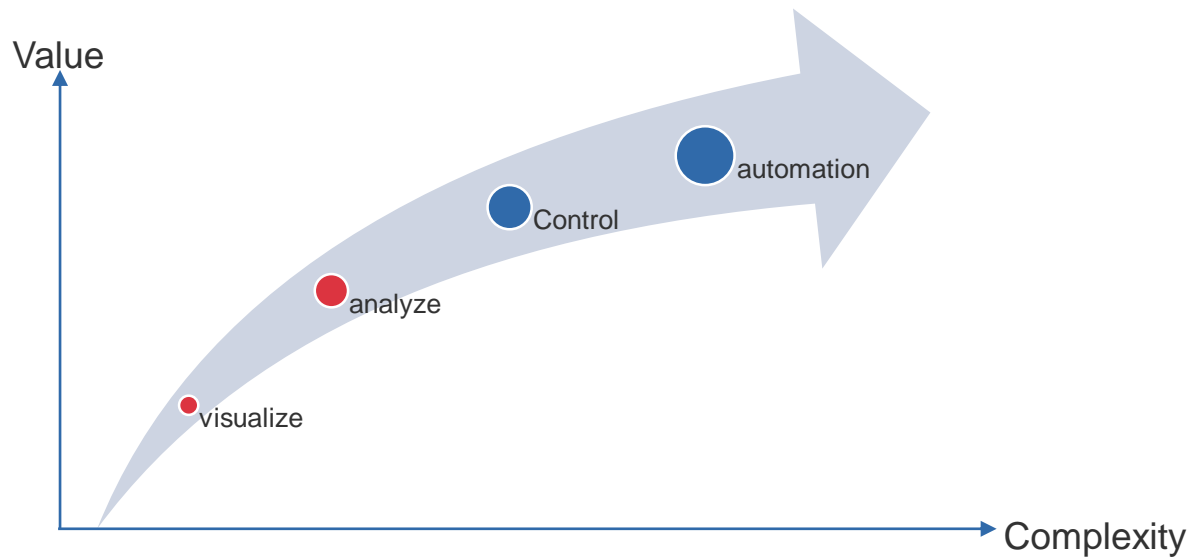


IoT; Our Approach

Integrate IoT Value chain

Collaboration is the key driver to increase our value

Integrate IoT value chain with other experts, especially for sensors and operations



Why shrimp farming?

Survival rate 60%

- ... It means **40%** die
- ... Often complete destruction

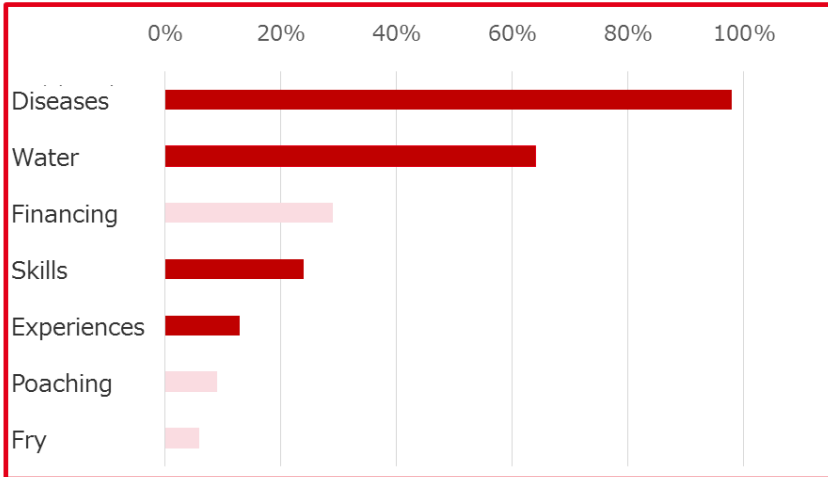


Can real time monitoring help?

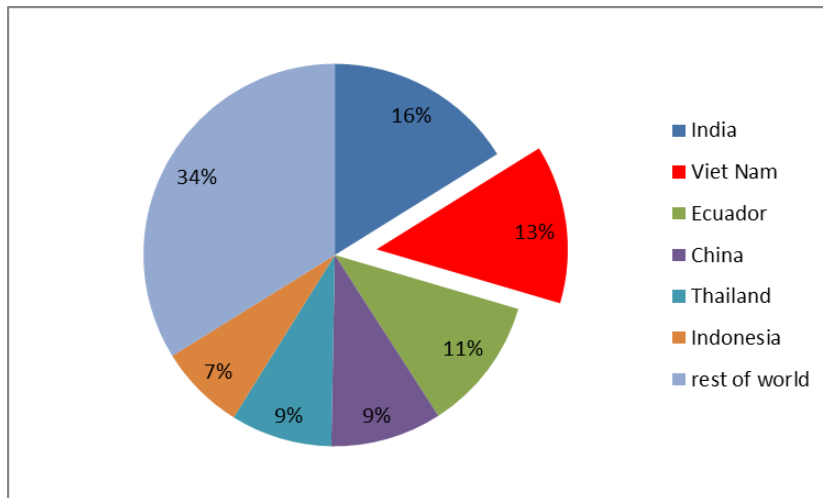


Pain & Opportunity

Concerns Facing Shrimp farmers



Global Shrimp Export



McKinsey Global Institute industry digitization index; 2015 or latest available data

Relatively low digitization Relatively high digitization

● Digital leaders within relatively undigitized sectors

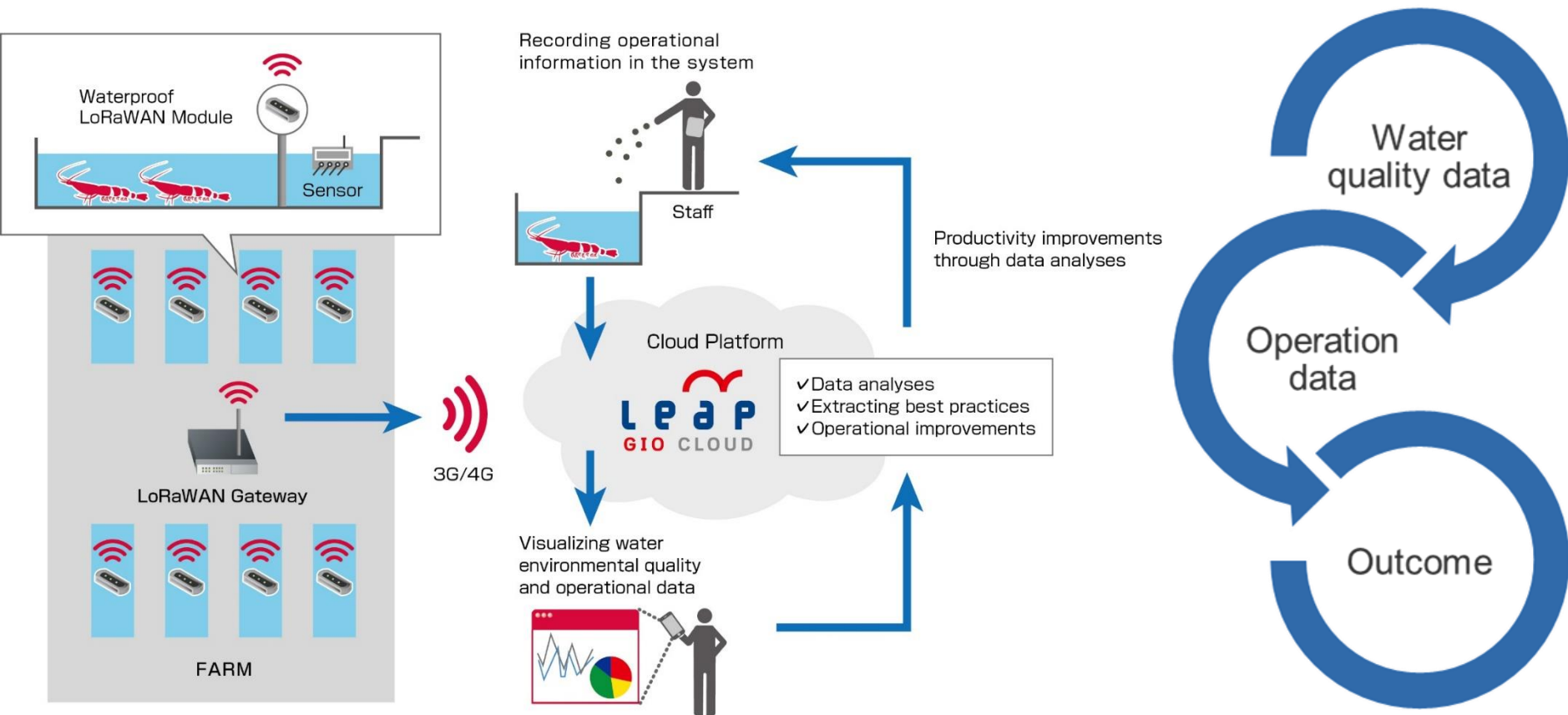


Overall System Diagram

Visualize water quality & operations
Analysis & Operation improvement



Promote productivity



Integrate IoT Value chain with partners



Current situation

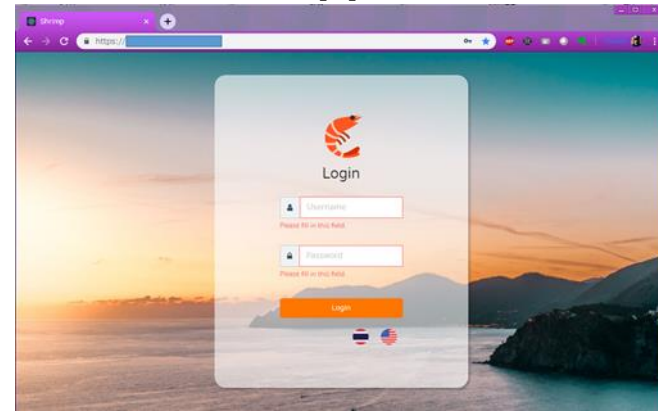
Sensors



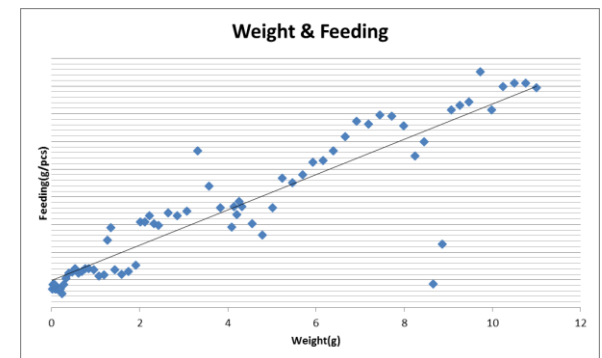
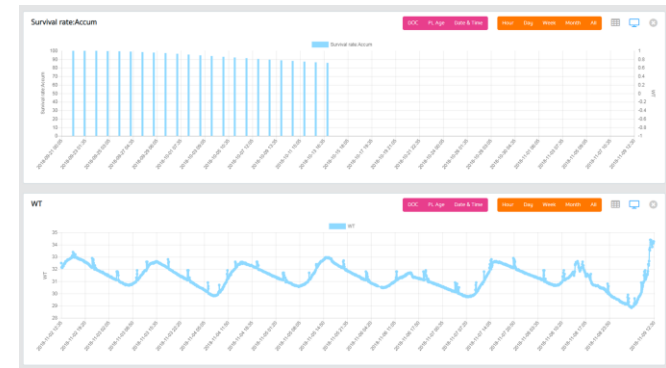
Installation



Apps



Whiteleg shrimp



Achievements & Challenges

Achievements

- **Sensor installation**
- **Data collection**
- **LoRaWAN**
- **Application**

Challenges

- **Sensor durability**
- **Data preciseness**
- **Operation change**

Ongoing issues

- **Analysis**
- **Business model**
- **Business feasibility assessment**

Key Drivers

Knowledge of IoT services







ASEAN-wide Cloud

LPWA experience in the agriculture sector

Large market potential in aquaculture in ASEAN

Reliable partners

Government support

Project Management, Data Analysis		
		
Cloud Architecture	Sensor System Installation Application Development	Aquaculture Operations
		
Cloud Services		
		

JETRO



AMEICC

Future Plan

Making Aquaculture IoT Platform

- Significant potential needs in the entire ASEAN region
- Applications in other fishery resources
- Water management tool for other industries



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Thank you!

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