Remote Water Monitoring, Sewage Management, Quality Assurance and Recyclability of Water

Theme: Water; Team Name: SEETA Solutions (Manu, Deepti, Vithika)

Enabling the Bottom of Pyramid through Water Management Services on the Cloud, Water Quality Tools, Blockchain Network and Open Source Spreadsheet, PACS

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ENABLING THE BOTTOM OF THE PYRAMID THROUGH WATER MONITORING, MANAGEMENT SERVICES ON THE CLOUD








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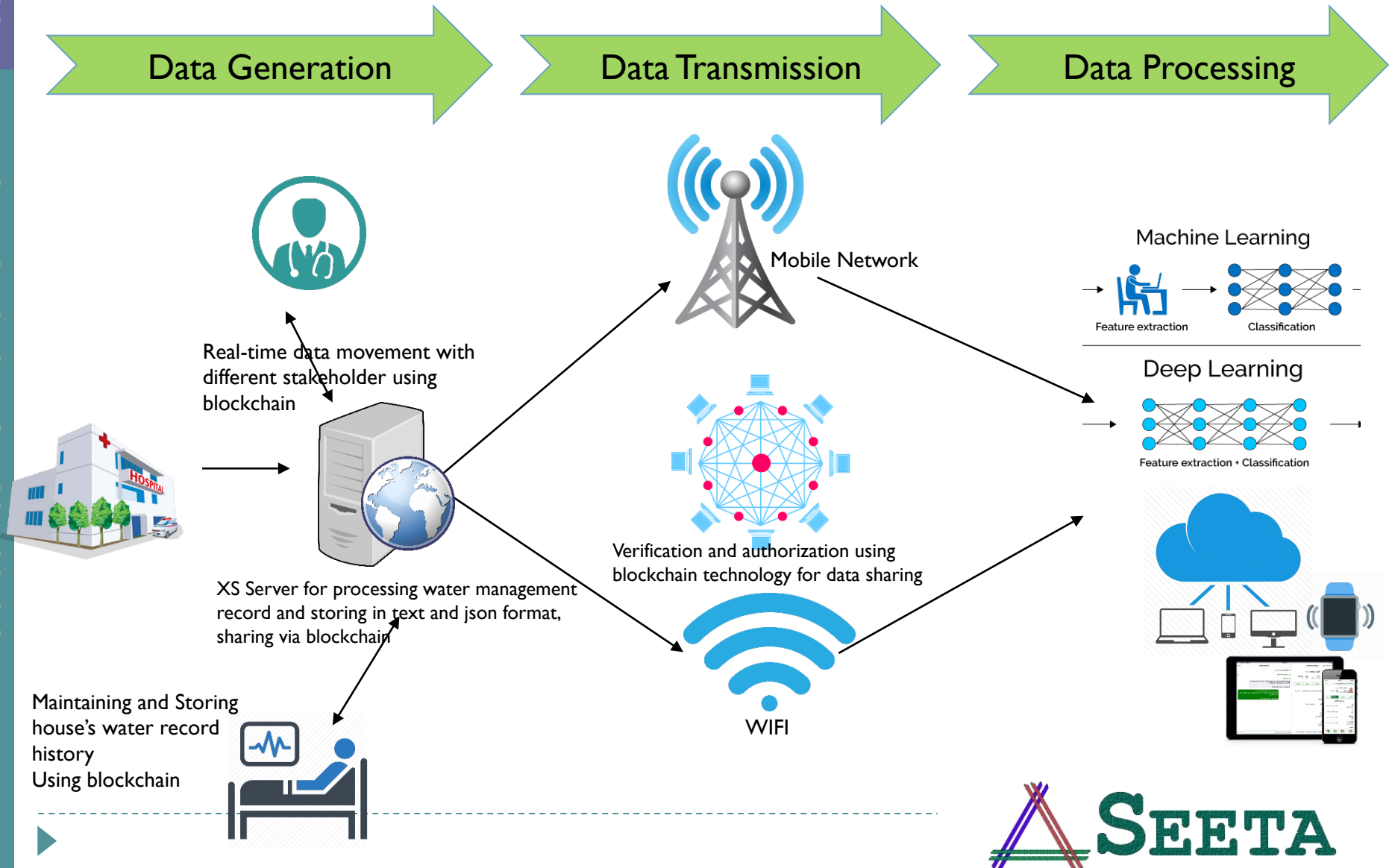
EXPANDING CLOUD COMPUTING TO MOBILES

Architecture utilizing Innovative, Cost-Effective, Sustainable technology



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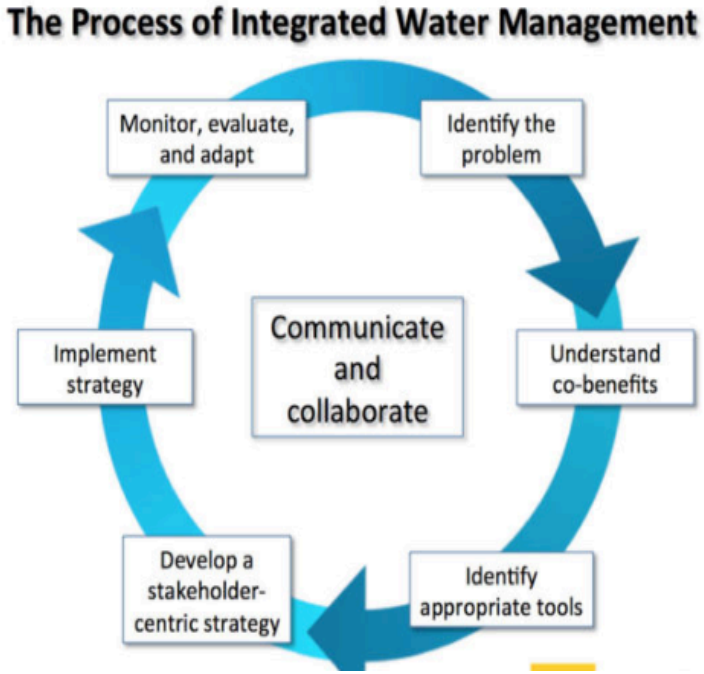
Our Solution

Our vision is to carrying out research on new models that incorporate technology and which aims at revolutionizing the water management, monitoring and re-usability practices around the world. The technology solution is designed specifically to address the needs of the water, health and environment eco-system comprising of civic bodies, water management units, government, citizens, hospitals, laboratories, R&D organizations and improve the operational efficiencies.

Just in Time service

Availability of water records in the city suffering from environmental issues across different stakeholders through a secure blockchain network



Better Water Management

Journal of water management records covering complete geo-location history improve the outcomes of policy implementation

Record Management

Quality documentation reduces the issues regarding water management policies.

Transparency

Insurance agencies can utilize the data to provide customized house insurance plans to the customer. Ground water are at an all time low.

Research

Research laboratories can use the data for diagnosis of water borne diseases, suggesting personalized action to water treatment plants

Web Application

Cloud based web application with chat based interface for quick water wastage attention

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Water Management and Monitoring Portal

Reliable background for building a good portal for citizens focused on cost effective usage of water

•Cloud interface for storing Water data on the Cloud

•Separate interfaces for Policy Makers/Government and Citizens/Consumers

•A web interface for allowing Citizens/Government to upload data

•Ability to comment on a prevention scheme and reports which have been shared.

•Ability for citizens to share their profiles/reports with advisers they chose

•Collaboration to allow different advisers/citizens to work on same area simultaneously

•Collaboration to allow citizens to view online water management facilities closest to their location and allow them to chat and take advice

• Mobile Application to perform all these services through mobile

• Emergency Water Management Services

Water record portal for Government, citizens, professionals as well as civic bodies, to interact and store data on the cloud

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Product/Service Details and Benefits

APPLICATION MODEL

Cost Effective Water Management/ Monitoring EVERYWHERE!

WHAT'S Water Management/ Monitoring ON THE CLOUD?

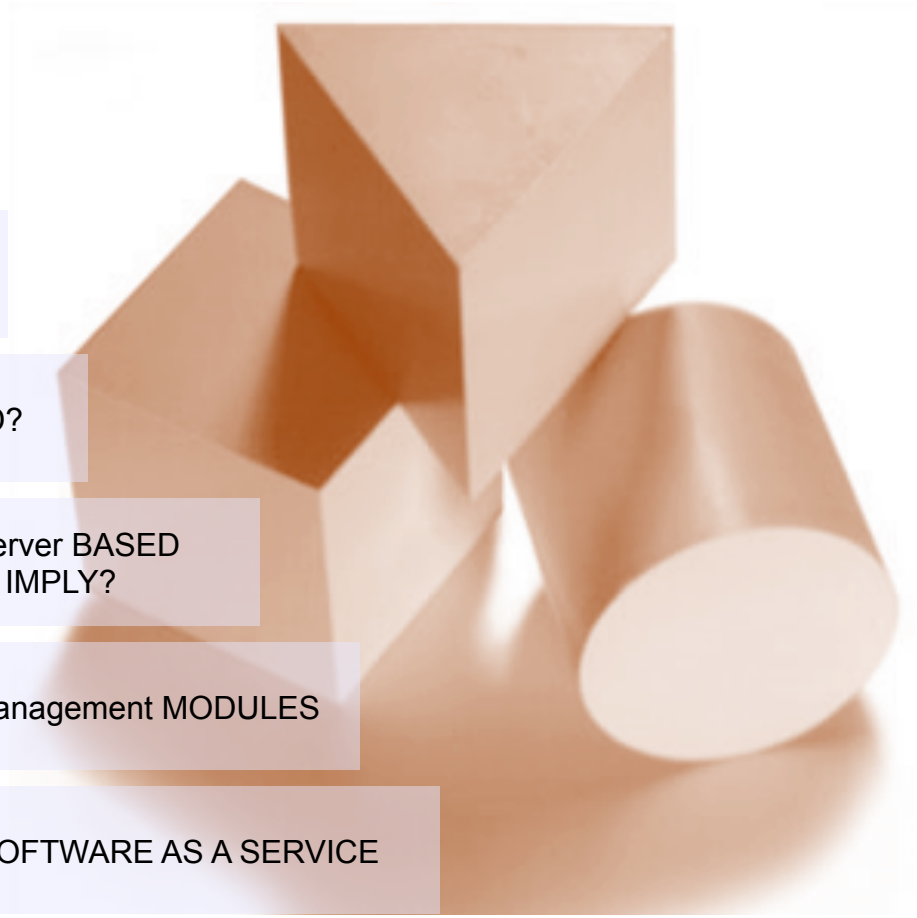
WHAT'S ON THE CLOUD?

WHAT DOES Server BASED SOLUTION IMPLY?

Water Management MODULES

SOFTWARE AS A SERVICE

SERVER APPLICATION MODULES/MONITORING



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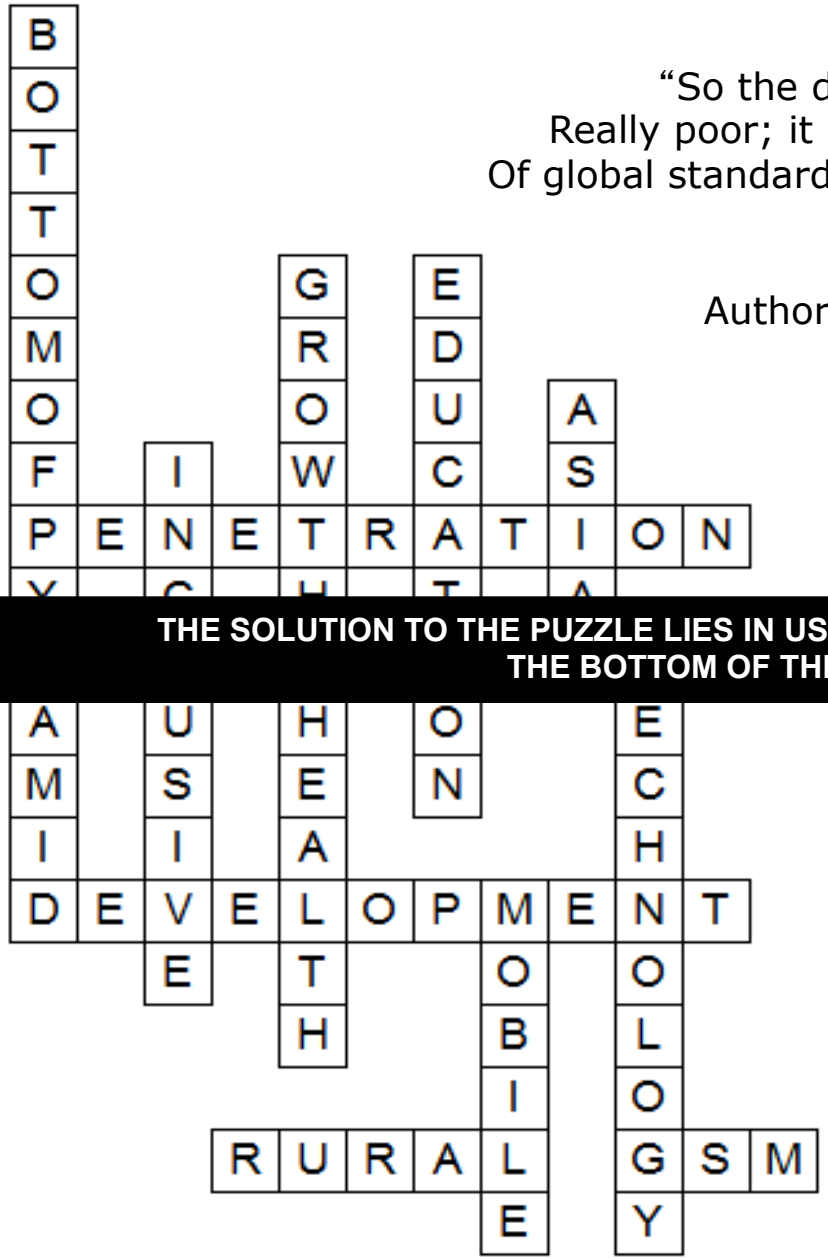
Affordable Water Management Solution



"So the debate is not anymore about how many are
Really poor; it is about how to bring to them the benefits
Of global standards at affordable prices and increase access"

- C.K.Prahlad
Author of "Fortune at the Bottom of the Pyramid"

THE SOLUTION TO THE PUZZLE LIES IN USING TECHNOLOGY TO EMPOWER THE BOTTOM OF THE PYRAMID

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IMPACT

What technology will reach the Masses in the right manner?

- Gartner placed Cloud Computing and Machine Learning amongst the top 10 strategic technologies for 2018
- Need to customize Technology to suit the needs of Asian and Global Markets
- Each software needs to go up to the Cloud
- Our focus: On Water Management, Monitoring and Reusability software

The Water Management, Monitoring, Quality Assurance and Reusability Application on the Cloud and Mobile

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WHAT' S ON THE CLOUD?

What does the Water Management, Monitoring and Quality Assurance on the Cloud mean?

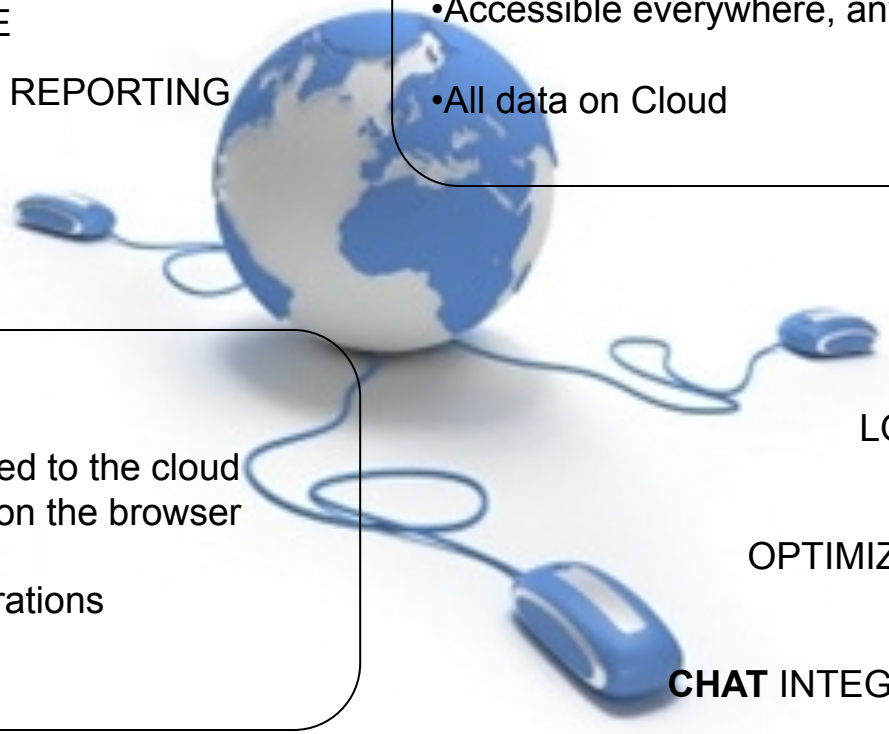
Water Geo-location Record DATA ANYWHERE

Water Geo-location Record Viewer EVERYWHERE

SIMLUTANEOUS REPORTING

MONITORING

- The Water Geo-location Application accessible through the Internet Browser
- Accessible everywhere, anywhere
- All data on Cloud



COLLABORATION

LOCALIZATION

OPTIMIZATION

CHAT INTEGRATION

- All the systems integrated to the cloud
- access the application on the browser
- Server handles the operations

On Cloud – Applications Anytime, Everywhere, Anywhere

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WHAT'S ON THE CLOUD?

What does Water Management, Monitoring and Quality Assurance solution on a Cloud mean?

Storage of Data on the Cloud

Integration with Ethercalc and SocialCalc

Interoperability with other open source Water Management Geo-location based solutions

Collaboration between servers

The open source Water Management Application accessible as an Application on all browsers.

Application on Cloud – Anywhere and everywhere!

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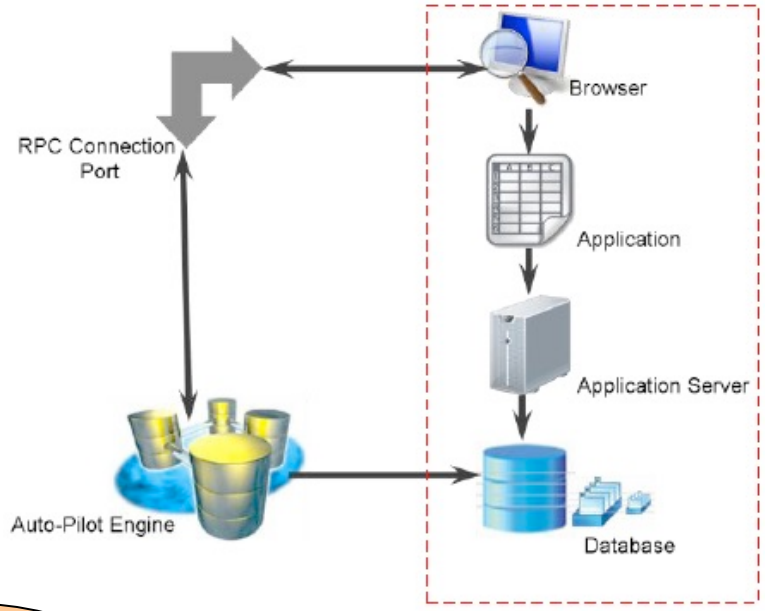
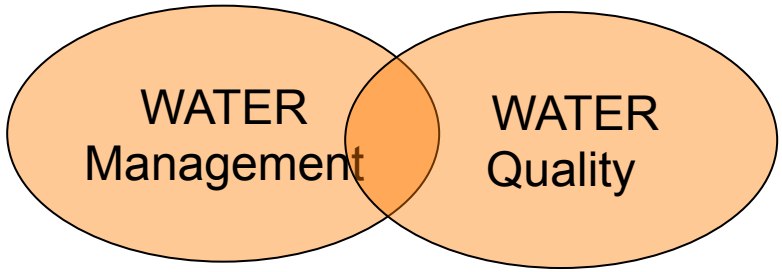
WHAT DOES ALL THIS MEAN?

What does Cloud Server based solution imply?

- Robust framework for Internet based and Mobile based Web and Spreadsheet Applications
- Complex applications can be built with Rest API and SocialCalc
- Collaboration gives huge scope for innovation





Complex Applications – Anywhere and everywhere!

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WATER Management Everywhere

Is the cloud software the optimal user framework?

Makes complex problems easy

Ability to visualize problems in a new light

Helps solve grass root level problems

Manipulate to solve all kinds problems

Our solution can be the framework for Multiple problems

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System Architecture, Project Components and Workflow

System Configuration

1. Mamp server--
http://www.mamp.info/en/downloads/
3. Tornado Application Server
4. SocialCalc and EtherCalc software
5. Ionic framework, ReactJS
6. Amazon EC2, docker and Kubernetes
7. Orthanc server for imaging

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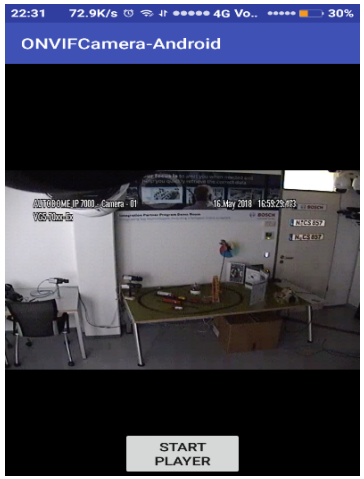
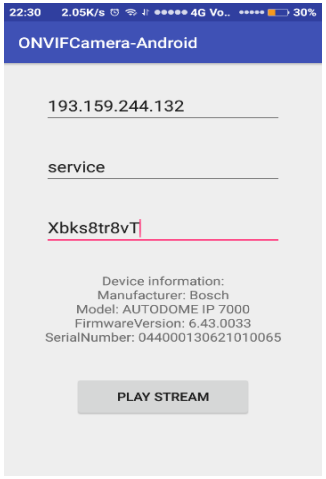
Application Modules For Water Management,

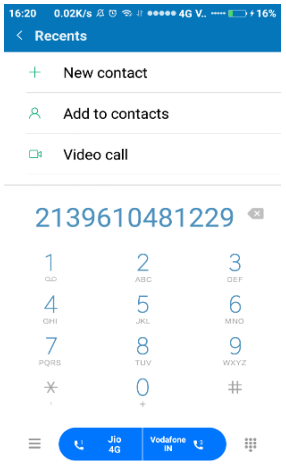
ONVIF SDK



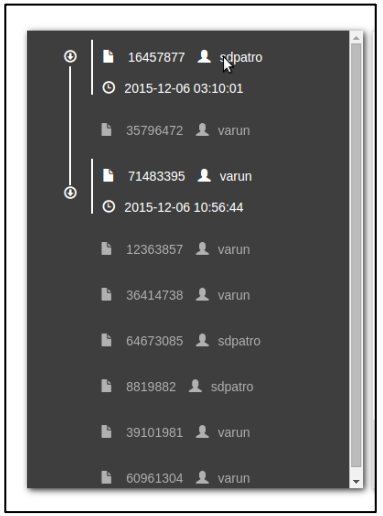
Login Module



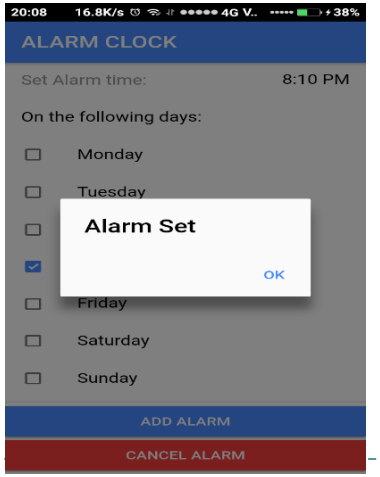
Phone Call



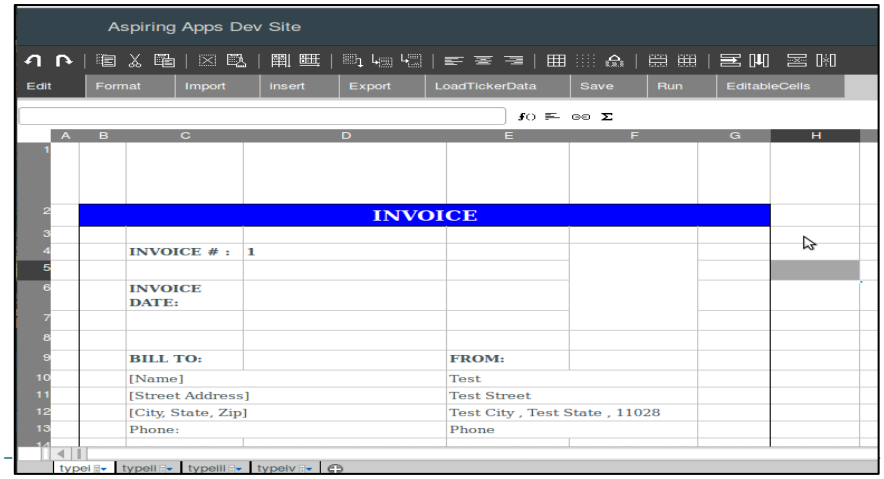
Log Manager



Alarm Settings



Spreadsheet user interface



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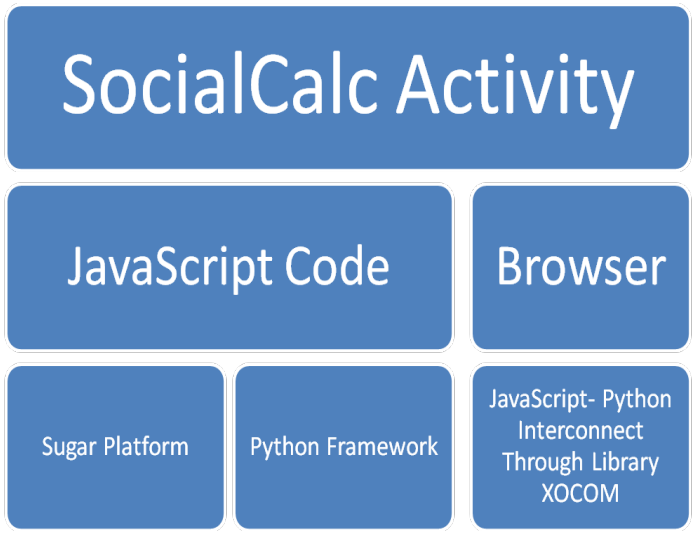
Features

- Tabulation
- Organization
- Graphing and Calculation
- Localization in different languages
- Multi-user editing over the mesh network
- Ability to read and edit single sheet Excel (.xls),
- Lotus (.wk4) and other popular spreadsheet files

Architecture



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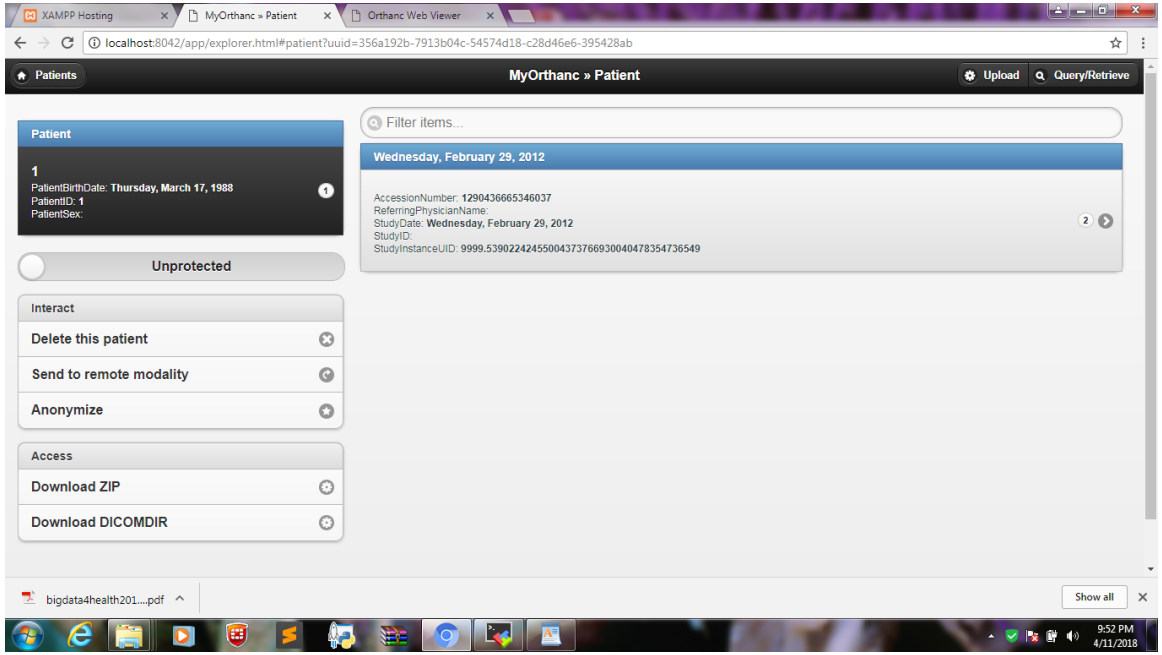
Workflow

Water Quality Sample Data query and retrieve from an instance



Viewing a water record examination for a place.

Cloud server based application – Anywhere and everywhere!

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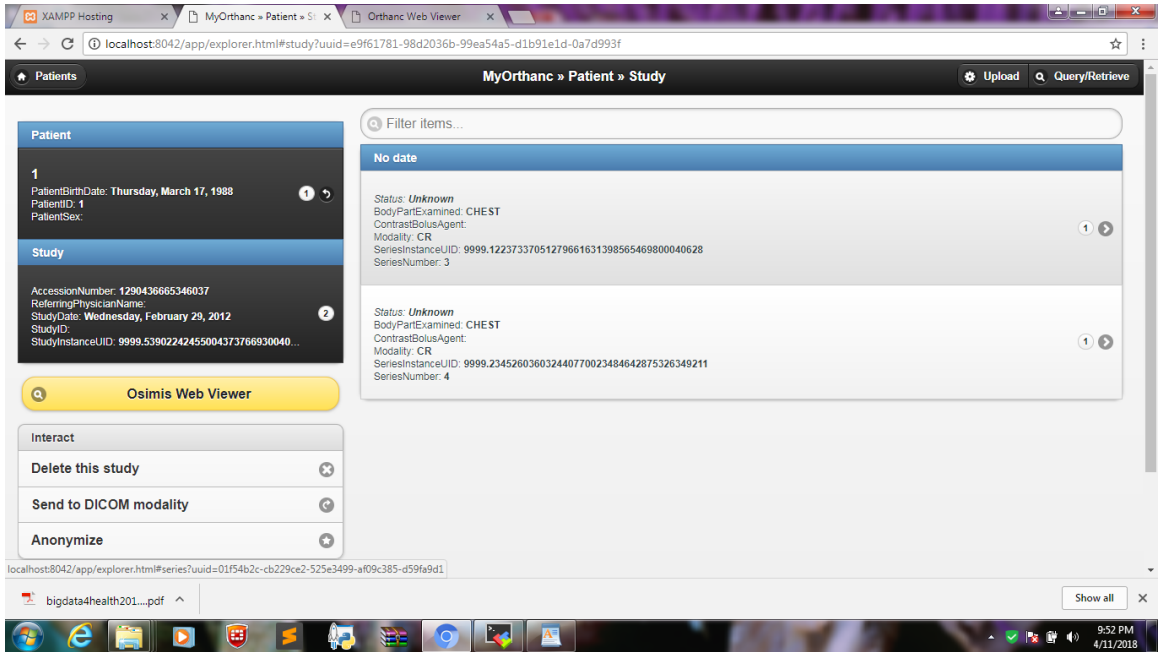
Workflow

Water Quality Sample Data query and retrieve from an instance



Two independent examinations available for the record currently viewed.

Cloud server based application – Anywhere and everywhere!

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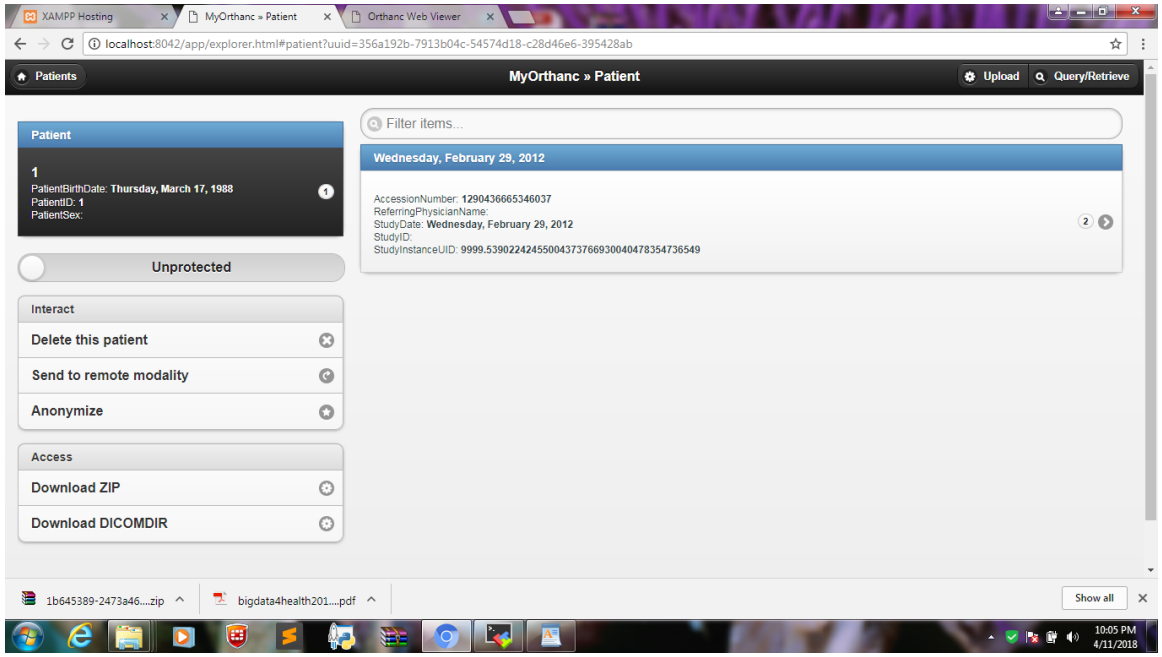
Workflow

Water Quality Sample Data query and retrieve from an instance



Download and send water management data to a remote modality

Cloud server based application – Anywhere and everywhere!

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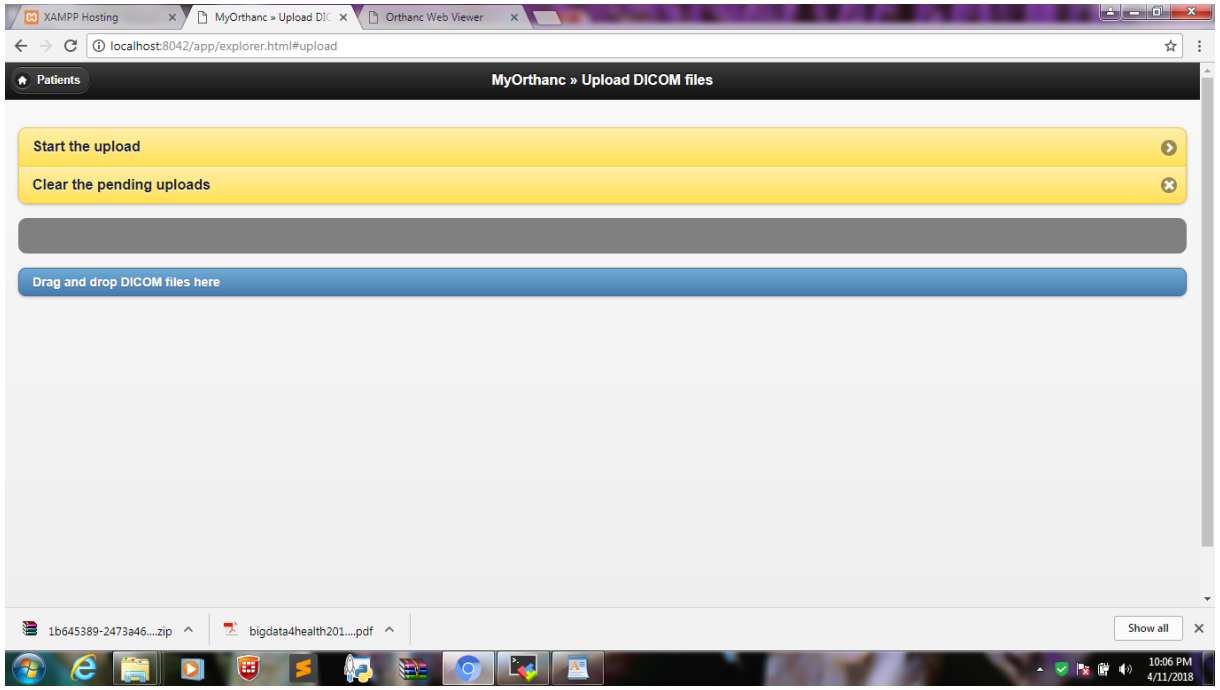
Workflow

Water Quality Sample Data query and retrieve from an instance



Upload water record data

Cloud server based application – Anywhere and everywhere!

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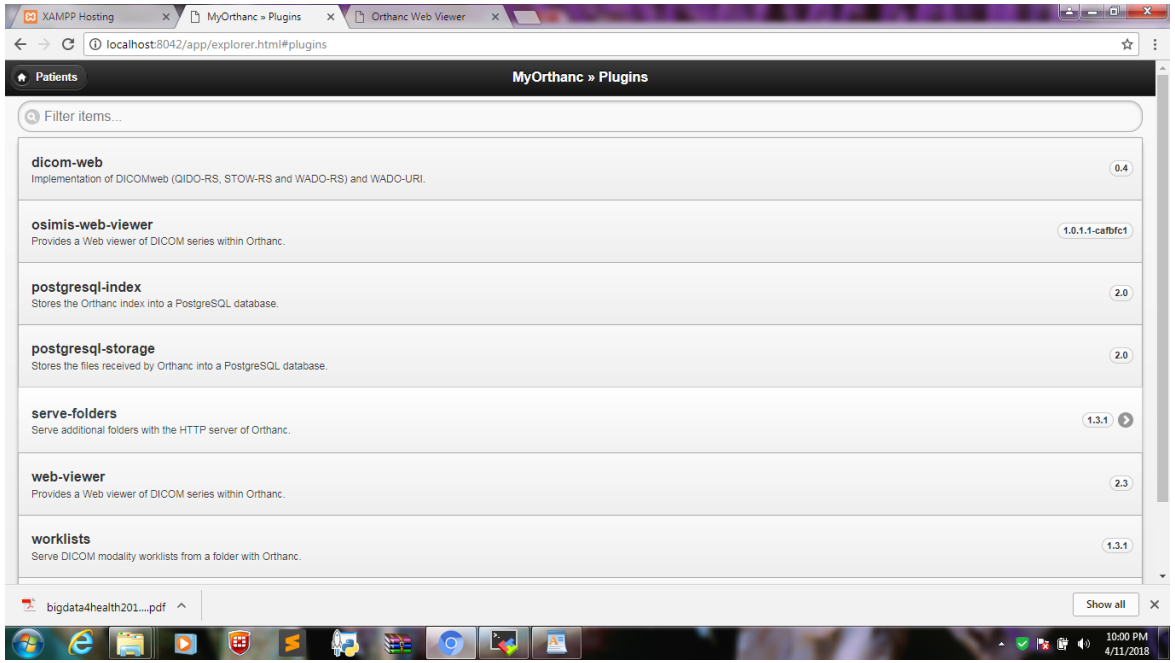
Workflow

WATER Quality Sample Data query and retrieve operation



Plugins

Cloud server based application – Anywhere and everywhere!

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WATER MANAGEMENT WITH SOCIALCALC

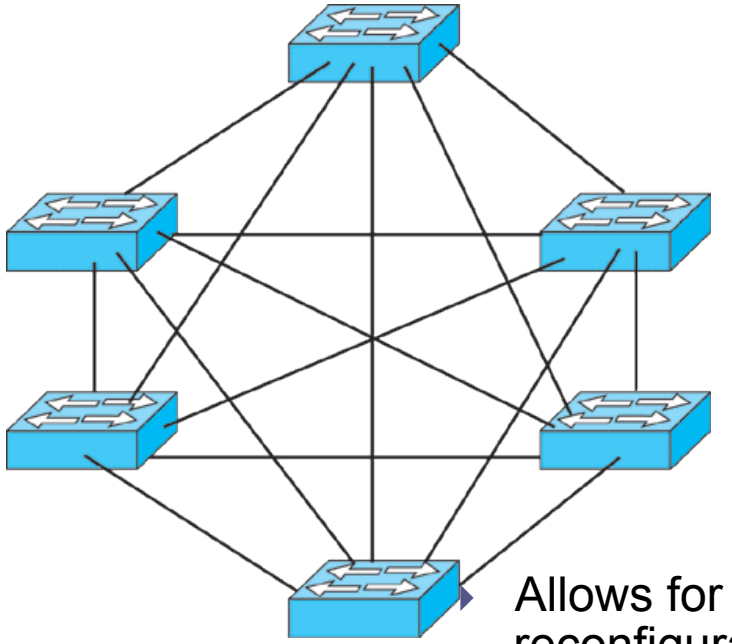
COLLABORATING ON SOCIALCALC

Collaboration over a Mesh Network

Collaboration over a Cloud Network

WATER MANAGEMENT ON THE MESH

- A type of networking wherein each node in the network may act as an independent router, regardless of whether it is connected to another network or not.



- Allows for continuous connections and reconfiguration around broken or blocked paths by “hopping” from node to node until the destination is reached.

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WATER MANAGEMENT ON THE MESH

HOW WE ACHIEVED IT

Dbus-tubes and telepathy framework

A basic infrastructure to call functions and send data from python to the JavaScript part & vice versa

Implementing Localization

Color Coding of Cells on Shared Spreadsheets

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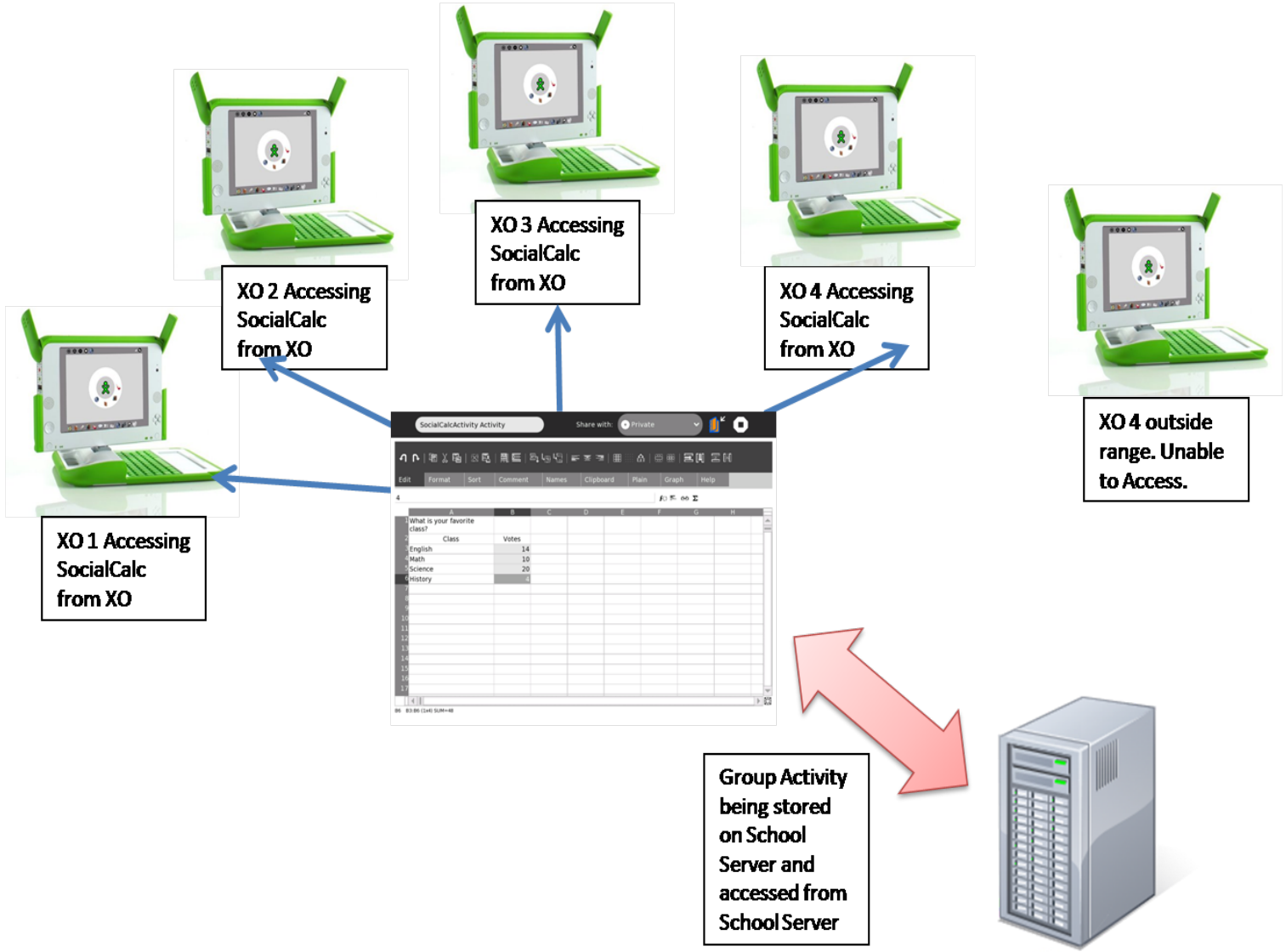
WATER MANAGEMENT ON THE MESH

ARCHITECTURE



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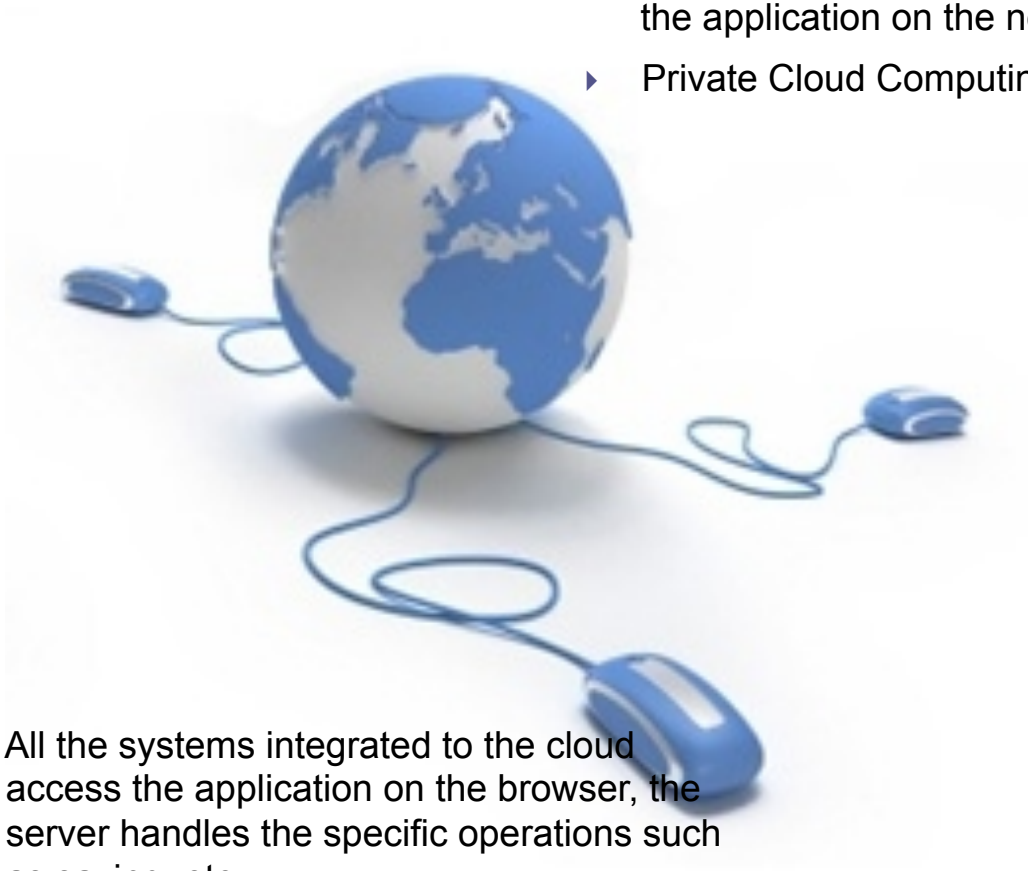
WATER MANAGEMENT ON THE CLOUD

- The application residing on the server is common to all the XO laptops. Hence, this removes the need to install the application on the network laptops.
- Private Cloud Computing



- All the systems integrated to the cloud access the application on the browser, the server handles the specific operations such as saving, etc.

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WATER MANAGEMENT ON THE CLOUD

HOW WE ACHIEVED IT

Integration with the server

Scaling the programme to support collaborative working

Integration with Chat Activity

Context Based WATER MANAGEMENT

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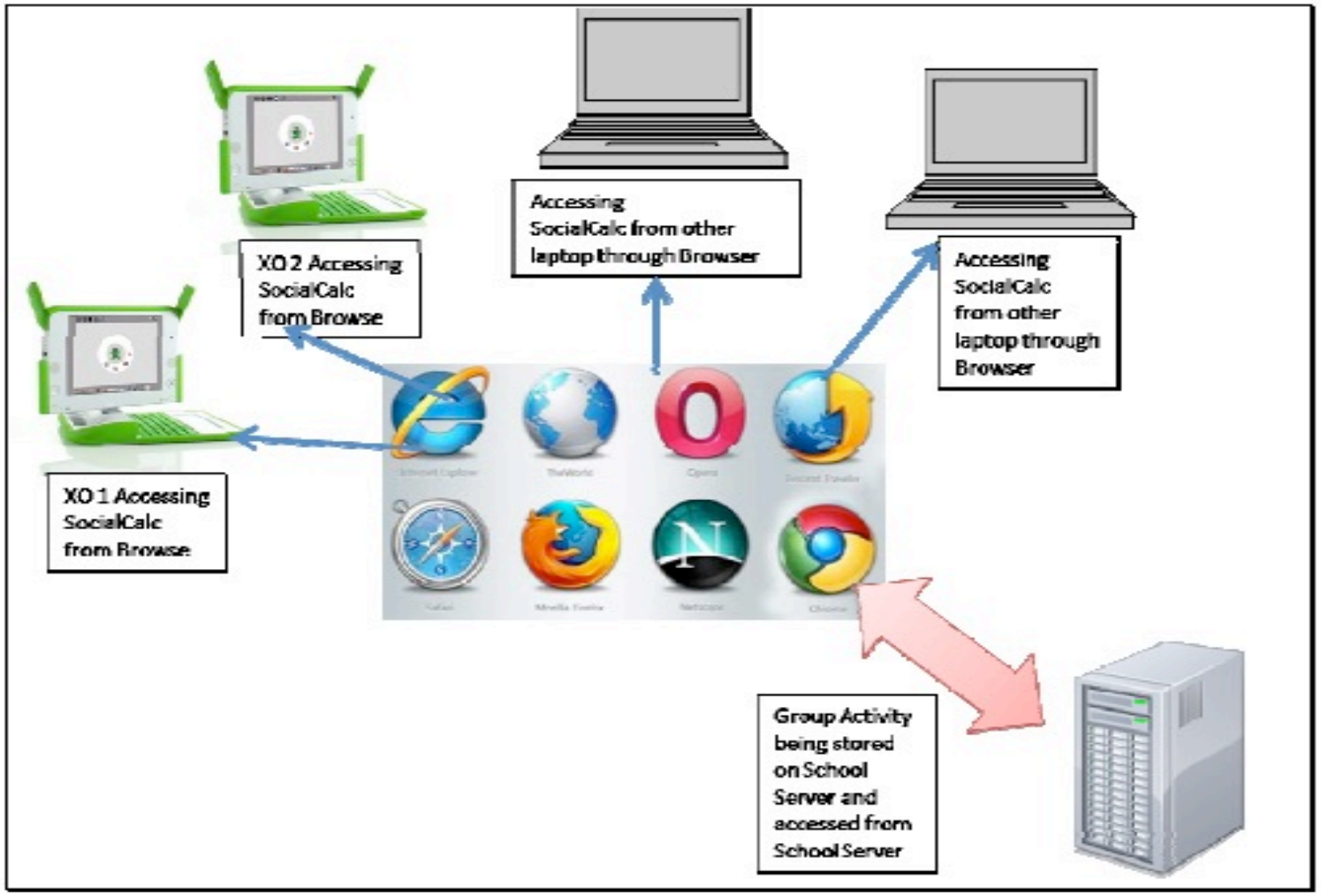
WATER MANAGEMENT ON THE CLOUD

ARCHITECTURE



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CONTEXT BASED MANAGEMENT

ADVANTAGES ON OUR SYSTEM

The server acts as the host for all the XOs

Any amount of activity occurring on the cloud is almost instantly saved on the server in the database

Presence of the government is not required at all times in order to monitor the study process

The government can assume the role of the moderator, who can supervise the citizens

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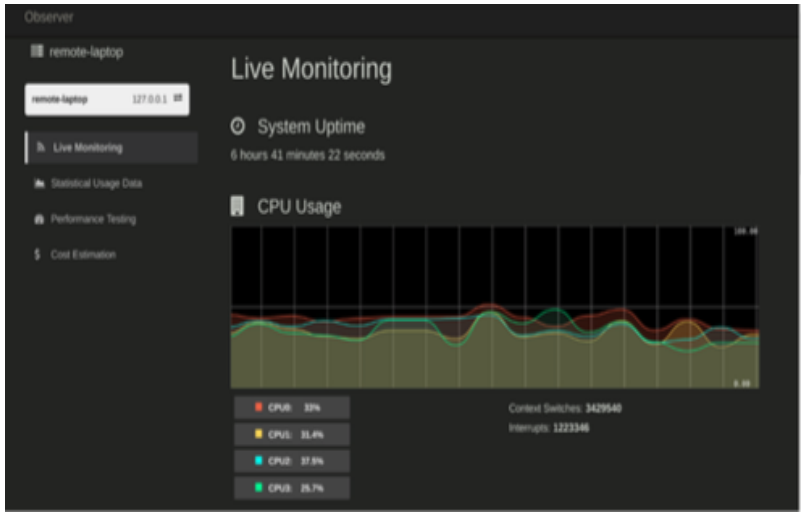
Server Side Development / Monitoring Solution

Live Monitoring

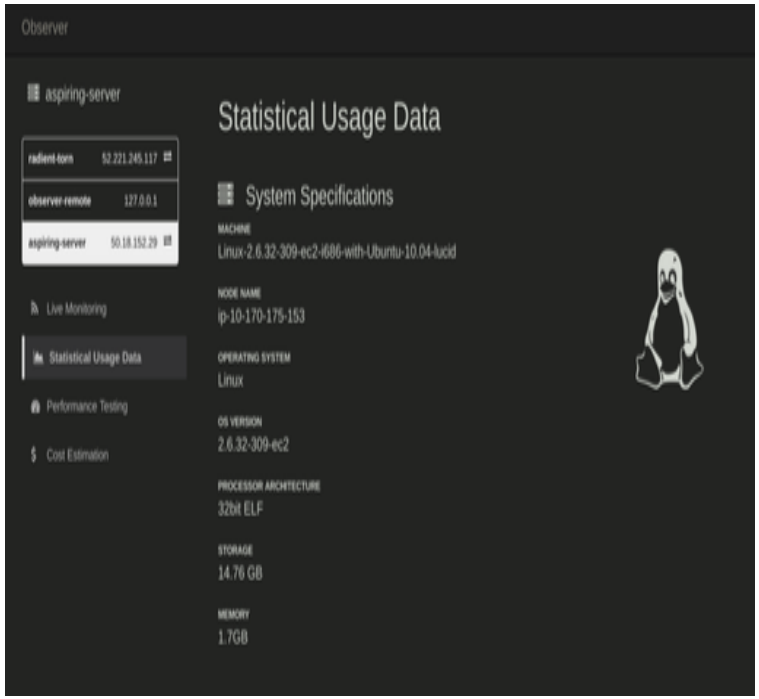


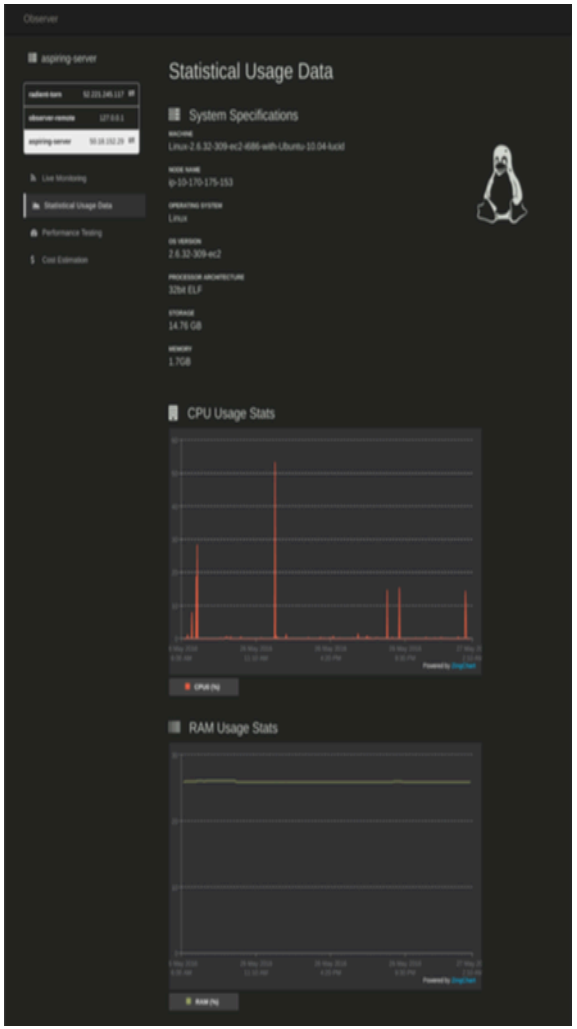
Observer

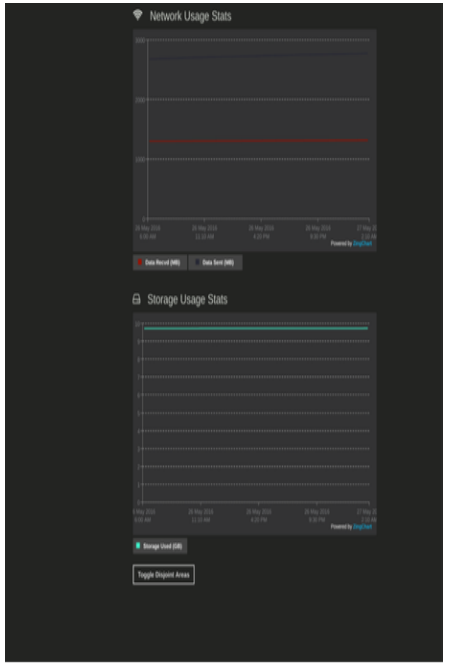
- **Remote** – Obtains monitoring data.
- **TCP** – Receives data from all Remote servers and saves to database.
- **HTTP** – Runs the website application to visualise data and execute tests.

Server side: Statistical Monitor, Usage Data Analytics

Statistical Usage Data







Live monitoring data from remote is stored on the database to condense them into statistical data over a longer period of time.

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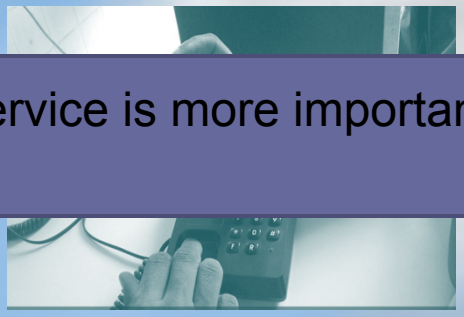
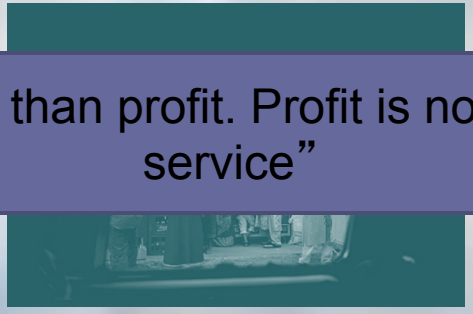
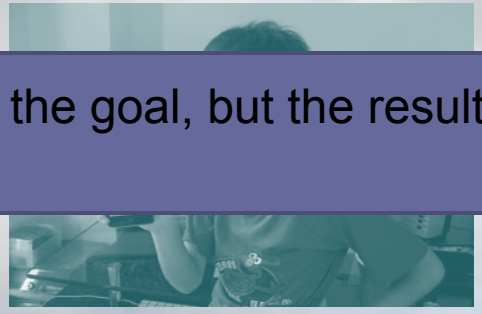
CONCLUSION







"Service is more important than profit. Profit is not the goal, but the result of service"