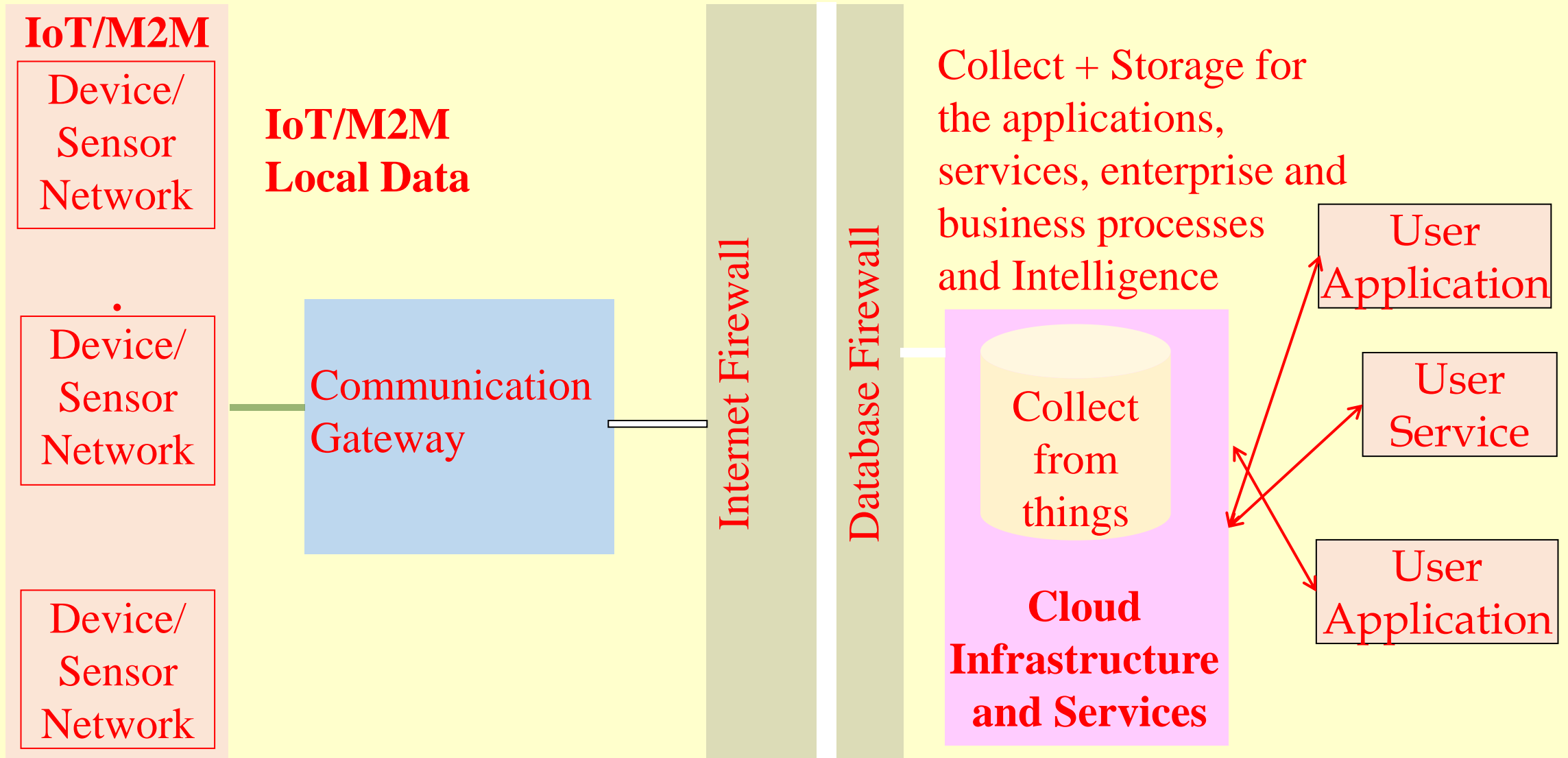


Lesson 4

Xively

Use of Cloud IoT cloud-based service

- The service provides for the data collection, data points, messages and calculation objects.
- The service also provisions for the generation and communication of alerts, triggers and feeds to the user.
- A user is an application or service. The user obtains responses or feeds from the cloud service.

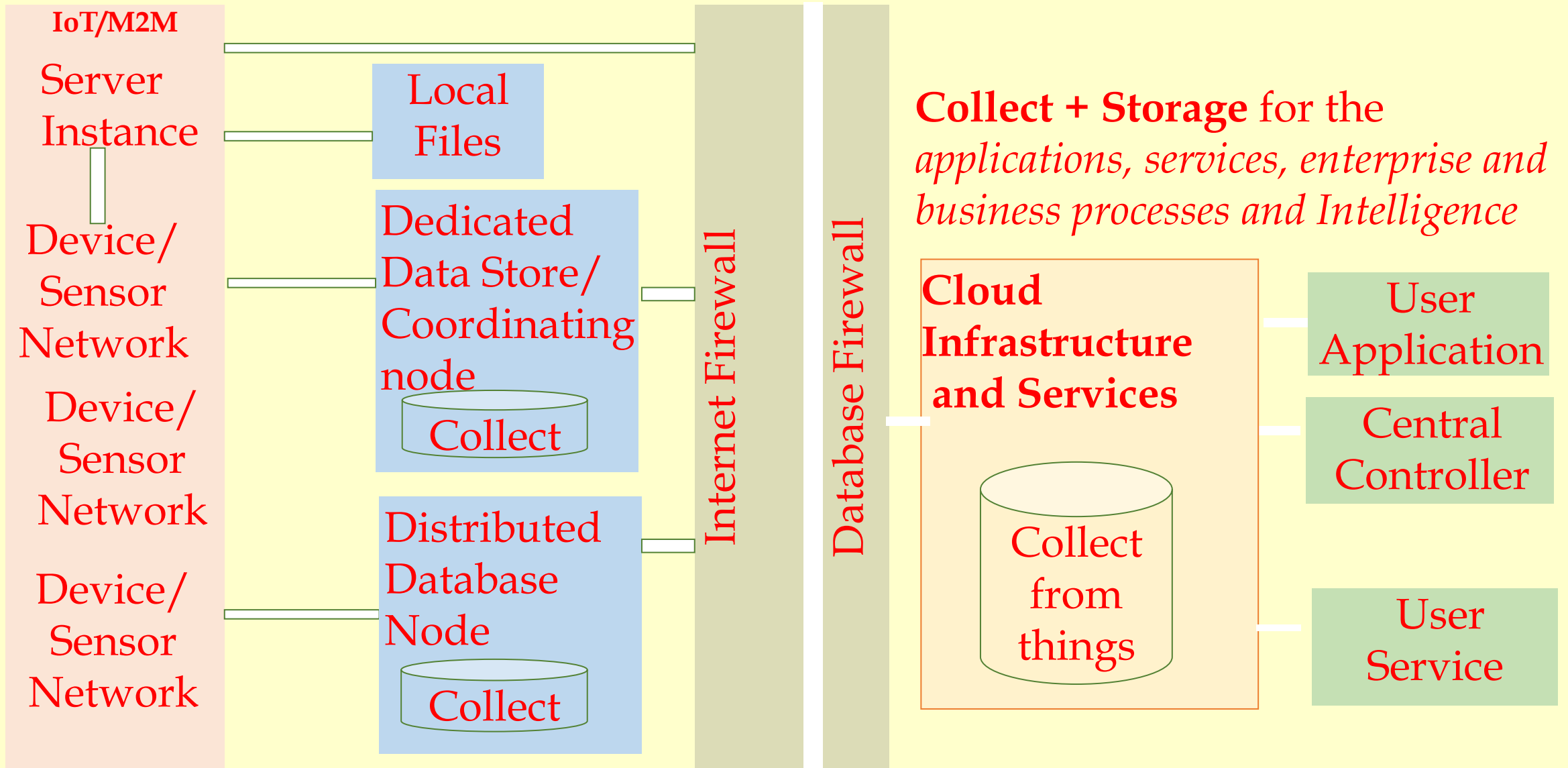


Xively

- Pachube platform: for data capture in real-time over the Internet
- Cosm: a changed domain name, where using a concept of console, one can monitor the feeds
- Xively is the latest domain name

Cloud service instance

- Cloud service deploys an instance of server at Arduino and other IoT sensor nodes platforms
- Provision for real-time data collection, data visualisation, graphical plots, HTTP based APIs and feed



Devices/Sensor Networks Data Collection at the Devices-network Web Server and at the Cloud infrastructure

Xively

- A commercial PaaS for the IoT/M2M
- A data aggregator and data mining website often integrated into the Web of Things
- An IoT PaaS for services and business services.

Xively PaaS services

- Data visualisation for data of connected sensors to IoT devices.
- Graphical plots of collected data.
- Generates alerts.
- Access to historical data
- Generates feeds which can be real-world objects of own or others.

Xively HTTP based APIs

- Easy to implement on device hardware acting as clients to Xively web services
- APIs connect to the web service and send data.
- APIs provides services for logging, sharing and displaying sensor data of all

Xively Support

- The platform supports the REST, WebSockets and MQTT protocols and connects the devices to Xively Cloud Services
- Native SDKs for Android, Arduino, ARM mbed, Java, PHP, Ruby, and Python languages
- Developers can use the workflow of prototyping, deployment and management through the tools provided at Xively

Xively APIs

- Enable interface with Python, HTML5, HTML5 server, tornado
- Interface with WebSocket Server and WebSockets
- Interface with an RPC (Remote Procedure Call)..

Xively PaaS services

- Enables services
- Business services platform which connects the products, including collaboration products
- Rescue, Boldchat, join.me, and operations to Internet
- Data collection in real-time over Internet

Various Methods for IoT Devices Data

- Concept of users, feeds, data streams, data points and triggers
- Data feed typically a single location (e.g. a device or devices network),
- Data streams are of individual sensors associated with that location (for example, ambient lights, temperatures, power consumption).
- Pull or Push (Automatic or Manual Feed)

Xively Data formats and Structures

- Number of data formats and structures enable the interaction, data collection and services
- Support exists for JSON , XML (Section 3.3.3) and CSV
- Structures: Tabular, spreadsheet, Excel, Data numbers and Text with a comma-separated values in file

Xively Uses in IoT/M2M

- Private and Public Data Access
- Data streams, Data points and Triggers
- Creating and Managing Feeds
- Visualising Data

Summary

We learnt

- Cloud service and infrastructure for user applications and services
- Devices network local Web server and feeds, streams, triggers and alerts to cloud service for usages by the applications and services
- Xively (Pachube/COSM) Cloud PaaS service

Summary

We learnt

- Cloud service deploys an instance of server at Arduino and other IoT sensor nodes platforms
- Real-time data collection
- Data visualisation
- Graphical plots

Summary

We learnt

- Xively data formats and structures
- Xively HTTP based APIs
- Xively REST, web sockets and web services

End of Lesson 4 on Xively