

Lesson 1

Key-Terms for Grid Computing, Web Computing and Cloud Computing and XaaS

Resource

- Atomic (not-further divisible) information, which is usable during computations
- Refers to one that can be read (used), written (created or changed) or executed (processed)

Resource Includes

- A path specification
- Method
- Multiple instances or just a single instance
- The data point Pointer
- Data Object
- Data store

System resource

- refers to an operating system (OS), memory, network, server, software or
- application.

Environment

- Refers to an environment for programming, program execution or both
- For example, cloud9 programming environment online for the BeagleBone boards for the development of IoT devices

Environment

- Windows environment for programming and execution of applications;
- Google App Engine environment for creation and execution of web applications in Python or Java

Platform

- Denotes the basic hardware, operating system and network for using that for
- the software applications or services over that the programs can be run or developed
- May provide browser and APIs: used as a base on which other applications can be run or developed

Edge Computing

- A computing at the logical extremes of a network.
- A type of computing that pushes the frontier of computing applications, data, and services away from centralised nodes to the computing nodes or data generating nodes

Distributed computing

- Refers to computing and usages of resources which are distributed
- at multiple computing environments over Internet
- and can be considered as one computing system (location independent)

Computing Resources at Distributed nodes

- Cooperating with each other
- Movable without effecting the computations
- Computing resources logically-related, which means communicating among themselves using message passing and transparency concepts

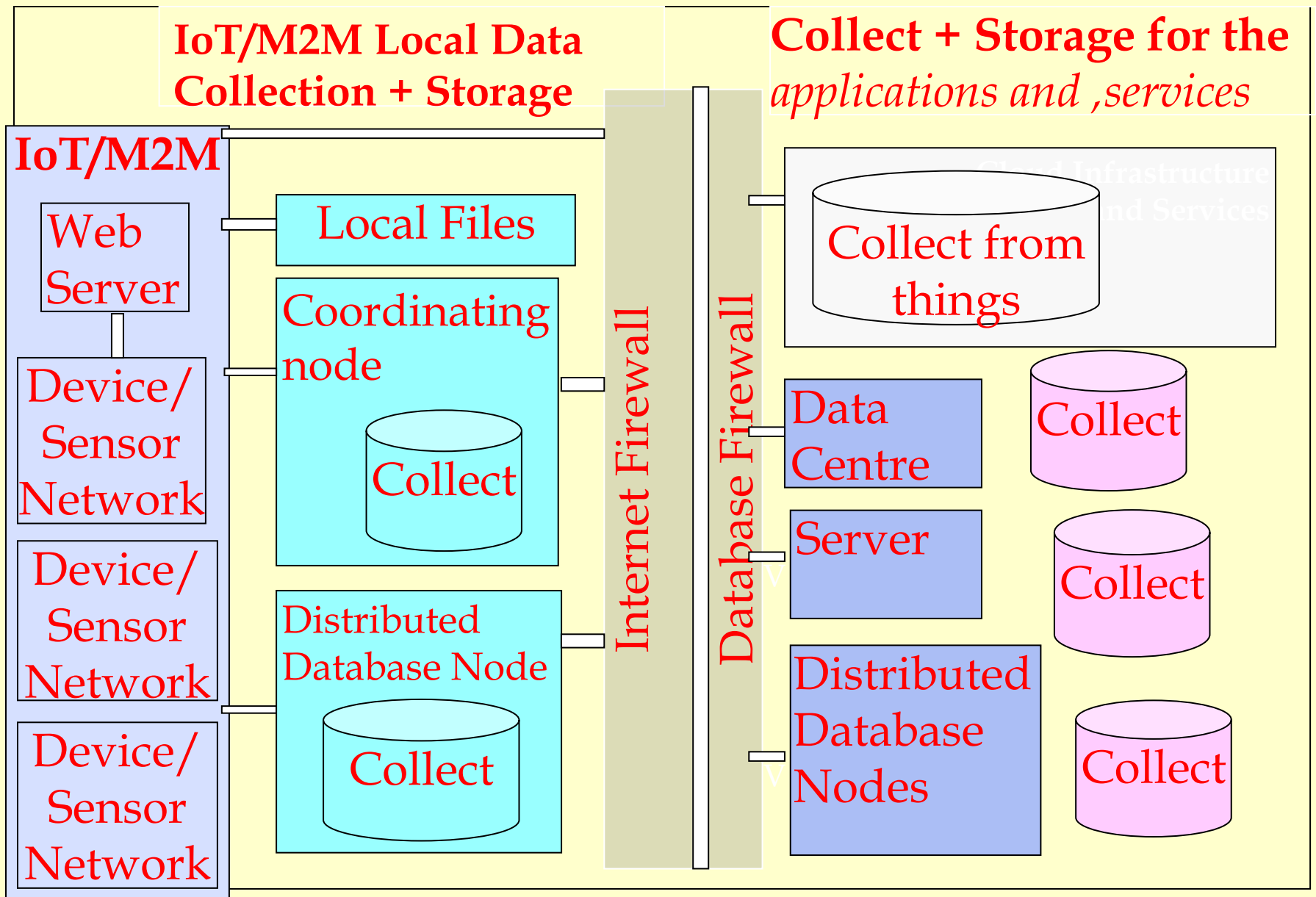


Fig. 6.1 Edge Computing at Coordinating node, and Internet connected distributed database nodes

Service

- An application calls a service for utilizing the capabilities
- Has a description,
- Has its discovery methods, such as advertisement for direct use or through a service broker

Service

- Binds to Service Level Agreement (SLA) between service (provider end point) and application (end point)

IoT Service Examples

- Home security breach detection and management service
- Waste container substitution service
- Health alerts service

Web Service

- An application identified by a URI
- Described and discovered using the XML based web-service description language (WSDL)

Service Oriented Architecture (SOA)

- A software architecture model which consists of Services, Messages, Operations and Processes

Message

- A communicating entity, such as data, piece of information

Web Computing

- Refers to computing using resources at computing environment of web
- server(s) or web services over Internet

Grid Computing

- Refers to computing using the pooled interconnected grid of computing
- resources and environments in place of web servers

Utility Computing

- Refers to computing using focus on service levels with optimum
- amount of resources allotted when required and takes the help of pooled resources and environments for the hosting applications
- The applications utilize the services

Cloud Computing

- Refers to computing using a collection of services available over Internet
- that deliver computational functionality on the infrastructure of a service provider for connected systems, and enabling distributed, grid and utility computing.

XAAS

- A software architectural concept that enables deployment and development of applications, and offering of services using web and an SOA

Complex Integration of applications and services

- A computing paradigm
- Uses XAAS concept deployment of applications and services on a cloud platform

Key Performance Indicator (KPI)

- Refers to a set of values
- Usually consisting of one or more raw monitored values including minimum, average and maximum specifying the scale
- Service expected to be fast, reliable and secure Offers guaranteed KPI

Resilient computing

- Refers to the ability of offering and maintaining the accepted QoS and
- KPIs
- In presence of the identified challenges, defined and appropriate resilience metrics, and protecting the service

Elasticity

- Denotes that an application can deploy local as well as remote applications or services
- Release them after the application usage,
- The user incurs the costs as per
- the usages and KPIs

Summary

We learnt

- Grid Computing
- Web Computing
- Cloud Computing
- KPIs
- Service and Web Service
- XaaS

Summary

We learnt

- KPIs
- Application and Applications Integration Service and SOA
- Elasticity
- Resilient Computing

End of Lesson 1 on
Key-Terms for Grid Computing,
Web Computing and
Cloud Computing and XaaS