

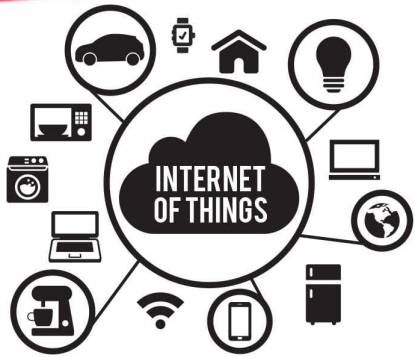


SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Department of Information Technology



19ITT302 - INTERNET OF THINGS

III B.Tech. IT/ V SEMESTER

UNIT V: DESIGN METHODOLOGY & FUTURE TRENDS

IoT System Management with NETCONF-YANG: Need for IoT Systems Management – Simple Network Management Protocol (SNMP) –Limitations of SNMP, Network Operator Requirements- NETCONF-YANG-IoT Systems Management with NETCONF-YANG -IoT Platforms Design Methodology - IoT Physical Devices & Endpoints - Raspberry Pi- Linux on Raspberry Pi - Raspberry Pi Interfaces - Programming Raspberry Pi with Python - Designing a RESTfulWebAPI - Amazon Web Services for IoT



IoT System Management

- Need for IoT System Management
- IoT systems have complex software, hardware interfaces consist of many sensors, actuators, software and network resources.
- Managing multiple devices within a single system requires advanced management capabilities.
- The need for managing IoT system requires following considerations
- Automating Configuration
- Monitoring Operational & Statistical Data
- Improved Reliability
- System Wide Configurations
- Multiple System Configurations
- Retrieving & Reusing Configurations



IoT System Management

- Automating Configuration
 - Automating the system configurations
 - It is required when IoT system consist of many devices or nodes.
 - It ensures all devices have same configuration
 - It can avoid variations or errors of manual configurations.
- Monitoring Operational & Statistical Data
 - Operational data is related to system's operating parameters and collected by system at runtime.
 - Statistical data describes system performance (CPU and memory usage)
 - This data is useful for fault dignosis and prognosis
- Improved Reliability
 - A management system that allows validating the system configuration before they are put into effect can help in improving the system reliability.



IoT System Management

System Wide Configurations

- IoT System consist of multiple devices or nodes so ensuring system wide configurations critical for correct functioning.
- Configuration of each system seperately (by means of manual or automated) results in system fault.
- Some system running new configuration whereas other still use old configuration.
- This results in system fault or undesirable outcome.
- To avoid this system wide configuration is required where all devices are configured in a single automic transaction.

Multiple System Configurations

- For system it may be desirable to have multiple valid configurations which are applied at different times or in certain conditions

Retrieving & Reusing Configurations

- Management systems which have the capability of retrieving configurations from the devices can help in reusing the configurations for other devices of the same type.



Thank You!