Machine

Learning

Assignment

Topic: Automation In IT Operations (AIOps)

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Introduction

Automation in IT Operations is the use of artificial Intelligence (AI), machine Learning (ML), and automation tools to manage IT infrastructure, applications, networks and Security. It helps improve efficiency, reduce downtime and optimize resources.

Key Areas of Automation

1. Infrastructure Automation

* Automated Server Provisioning using terraform, Ansible and Puppet.

* Cloud Automation through AWS Cloud formation, Azure Automation.

2. Network Automation

* AI-Driven network monitoring with Cisco DNA Center, Ansible & Juniper Apstra.

* Automated Network Security enforcement to prevent Cyber threats

3. Security Automation

     * Automated Threate detection and response Using Splunk, IBM QRadar, and Palo Alto Cortex XSOAR.

     * Patch Management Automation with WSUS, SCCM and Tanium.

4. Application Deployment & Devops.

     * Automated and Continous Deployment pipelines with Jenkins, Github Actions.

     * Container Orchestration Using Kubernetes and Docker Swarm.

5. AI for IT Operations (AIOps)

     * Predictive Analytics for proactive issue resolution Using Moogsoft, Dynatrace and Splunk ITSI.

     * Self-healing Infrastructure Using AI-driven root cause analysis.

Benefits of AI Automation

* Cost Reduction - Reduce manual effort and Operational expenses.
* Increased Efficiency - Speeds up IT Processes and minimizes human errors.
* Scalability - Helps manage IT resources dynamically as per demand.
* Better Security - Faster detection and mitigation of Cyber Threats.
* Improved User Experience - Ensures quick resolution of IT issues.

Challenges in IT Automation

* High initial Setup Cost and Complexity.
* Requires Skilled personnel for management.
* Risk of Over-automation leading to dependency issues.

Conclusion

IT automation is transforming how businesses operate by enhancing productivity, security and scalability.

By integrating AI-Driven automation tools, organizations can acheive seamless IT operations with minimal human intervention.