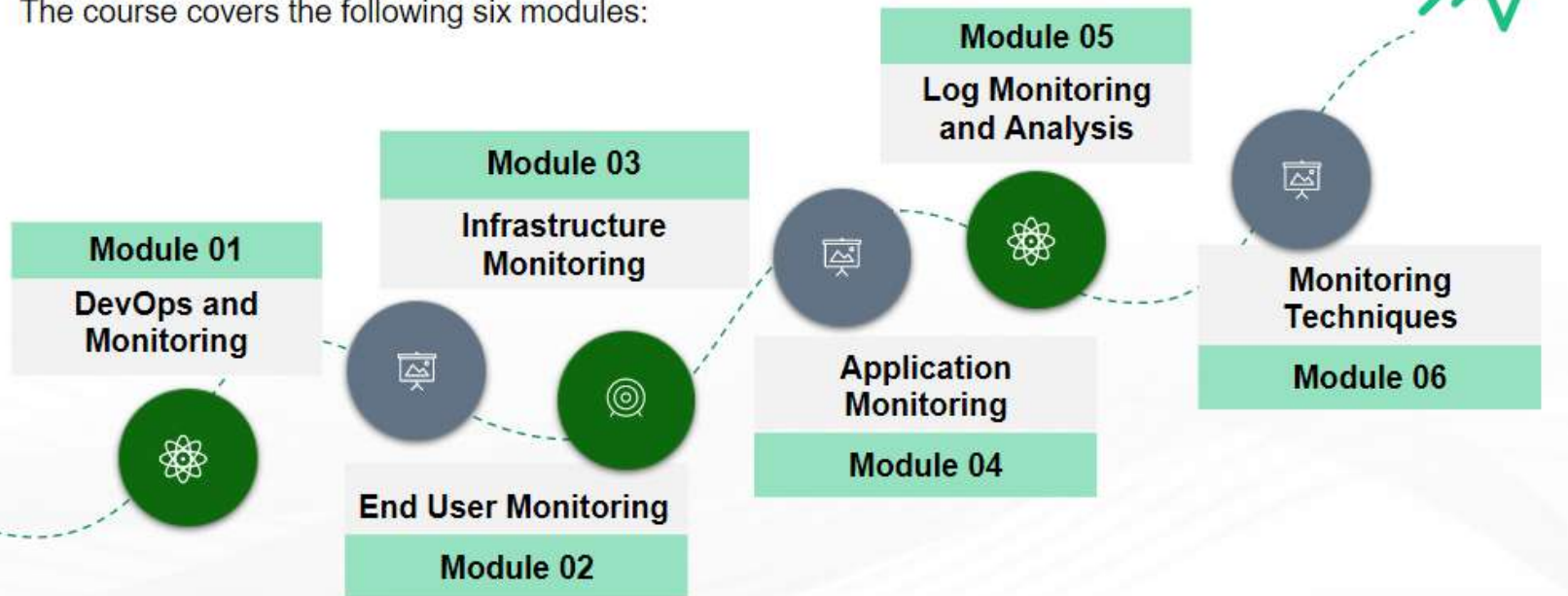


Course Introduction

Course Modules

The course covers the following six modules:



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1. ---



2. Let us Get to Know Each Other



3. Introduction to the Course



4. Course Learning Objectives



5. Course Modules



6. ---



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Semester 08

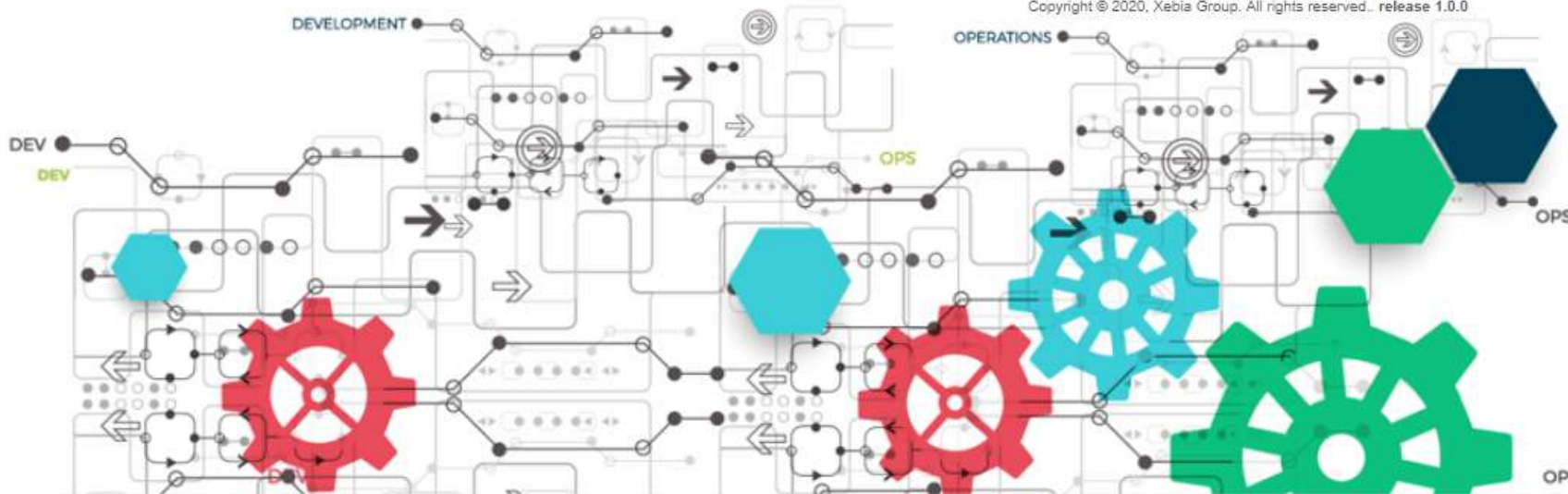
B.TECH CSE with Specialization in DevOps

Monitoring

Module # 01

DevOps and Monitoring

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1. ---



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)

Module 1: DevOps and Monitoring

Module Objective

At the end of this module, you will be able to:

- Define the monitoring
- Identify the need of monitoring
- Explain the approach of monitoring with respect to DevOps
- Define the Network Operations Center
- List the roles and responsibilities of NOC in DevOps world
- Describe the telemetry and metrics used for monitoring
- Explain the various aspects of monitoring



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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

Module Topics

This module covers the following topics:

- Introduction to monitoring
- Goals of monitoring
- DevOps approach to monitoring
- Network operations center
- Role of NOC in DevOps world
- Telemetry and metrics
- Types of monitoring: end user, infrastructure, application, log monitoring and analysis



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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

1.1 Introduction to Monitoring

What is monitoring?



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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

1.1 Introduction to Monitoring (Contd...)

Monitoring in IT infrastructure:



=



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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

1.2 Definition of Monitoring

Monitoring in IT infrastructure:



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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

What did You Grasp?



What is monitoring of IT infrastructure?

- A) Fixing things in production systems
- B) Understanding of the Infrastructure
- C) Periodic and methodical aggregation of information
- D) Healing the system

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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)

Module 1: DevOps and Monitoring

1.3 What is Key Performance Indicators?

The Key Performance Indicators (KPIs) are the identifiers for the health of a system:



Source: <https://efmireland.ie/wp-content/uploads/2020/01/Key-Performance-Indicators-and-why-they%E2%80%99re-good-for-any-business.png>

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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

1.3 Key Performance Indicators (Contd...)

There are basically four Key Performance Indicators, which are:



Availability



Responsiveness



Serviceability



Miscellaneous

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NOTES

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1. ...



2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



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Module 1: DevOps and Monitoring

What did you Grasp?



Why KPIs are required?

- A) For system to run fine
- B) For monitoring
- C) For the visibility of management
- D) Alerting the NOC team

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2. Module Objective



3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?

Module 1: DevOps and Monitoring

1.4 Goals of Monitoring

Goals of monitoring:

- Continuous observation
- Maintaining discipline
- Note down the issues and concerns
- Report the issues and concerns



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3. Module Topics



4. 1.1 Introduction to Monitoring



5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



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Module 1: DevOps and Monitoring

1.4 Goals of Monitoring (Contd...)

There are basically four goals of monitoring:



Learning



Accountability



Adaptation



Transferring Knowledge

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Search	
	4.1.1 Introduction to Monitoring
	5.1.1 Introduction to Monitoring (Contd...)
	6.1.2 Definition of Monitoring
	7. What did You Grasp?
	8.1.3 What is Key Performance Indicators?
	9.1.3 Key Performance Indicators (Contd...)
	10. What did you Grasp?
	11.1.4 Goals of Monitoring
	12.1.4 Goals of Monitoring (Contd...)



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Module 1: DevOps and Monitoring

What did You Grasp?



Why we need monitoring?

- A) To keep an eye on health of the system
- B) To define the KPIs
- C) To design the system
- D) To increase business revenue

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5. 1.1 Introduction to Monitoring (Contd...)



6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



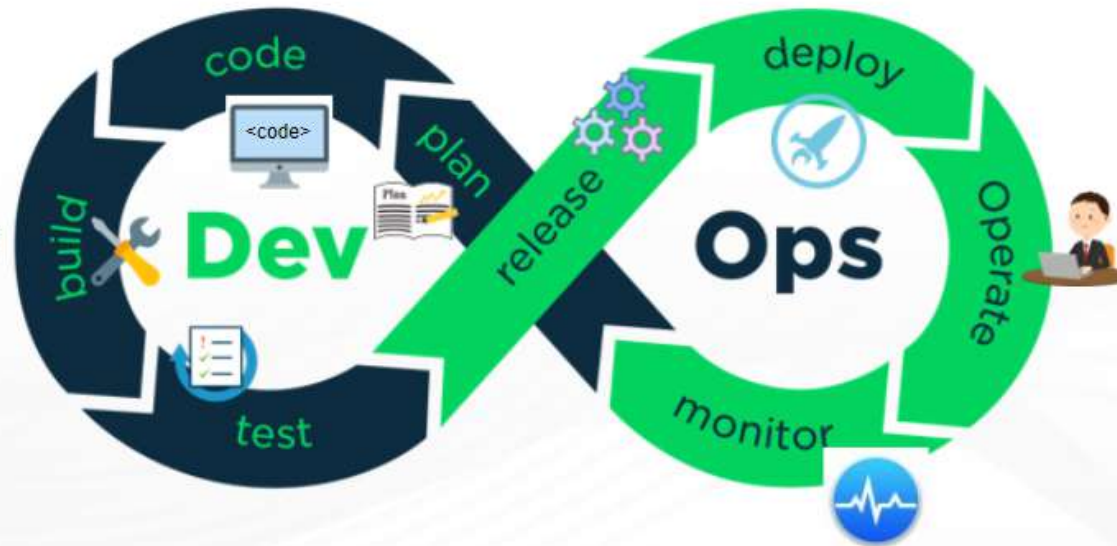
13. What did You Grasp?

Module 1: DevOps and Monitoring

1.5 DevOps approach to Monitoring

The key factor, which impacts the DevOps lifecycle:

- Continuous Integration
- Continuous Testing
- Continuous Delivery
- Continuous Deployment
- Continuous Monitoring
- Continuous Business Planning



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6. 1.2 Definition of Monitoring



7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



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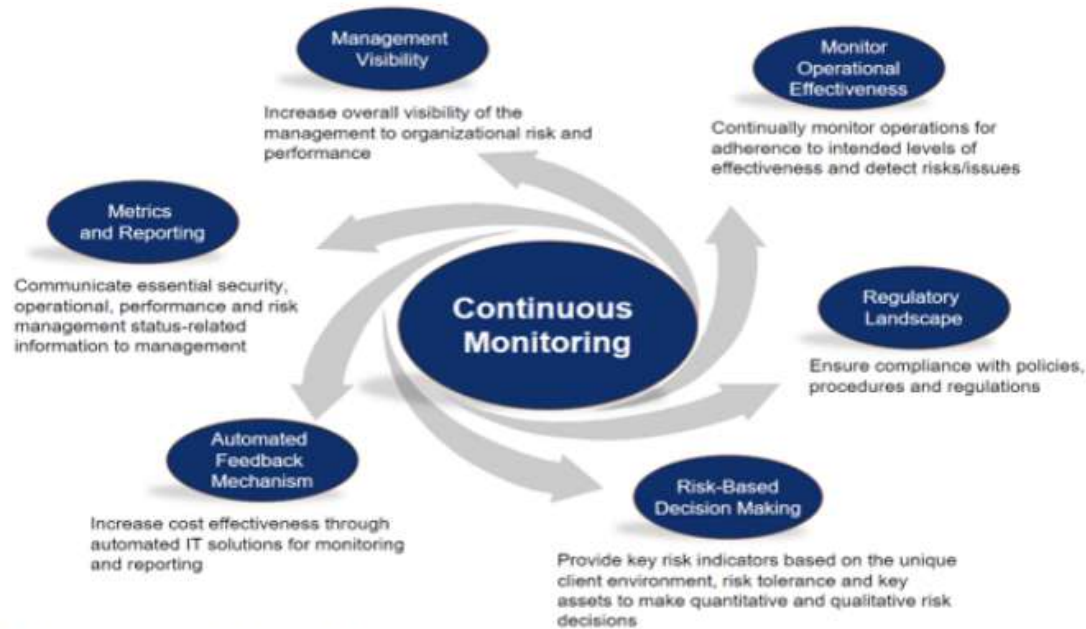
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Module 1: DevOps and Monitoring

1.6 Continuous Monitoring

The following diagram displays some facts of the continuous monitoring.



Source: https://fedrampcompliance.com/wp-content/uploads/2016/01/service_7.png

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7. What did You Grasp?



8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



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Module 1: DevOps and Monitoring

1.7 Network Operation Center (NOC)

The following image displays the Network Operation Center (NOC).



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8. 1.3 What is Key Performance Indicators?



9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



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Module 1: DevOps and Monitoring

1.8 Role of NOC in DevOps World

Roles of NOC:



24x7 Coverage



Advanced expertise



Focus



Customised solutions



Eliminating noise



Eliminating busy work



Added value



Peace of mind

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9. 1.3 Key Performance Indicators (Contd...)



10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



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Module 1: DevOps and Monitoring

What did You Grasp?



Why do we need NOC?

- A) To determine the business target
- B) To maintain the discipline
- C) To have market statistics
- D) To have a peace of mind

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10. What did you Grasp?



11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World

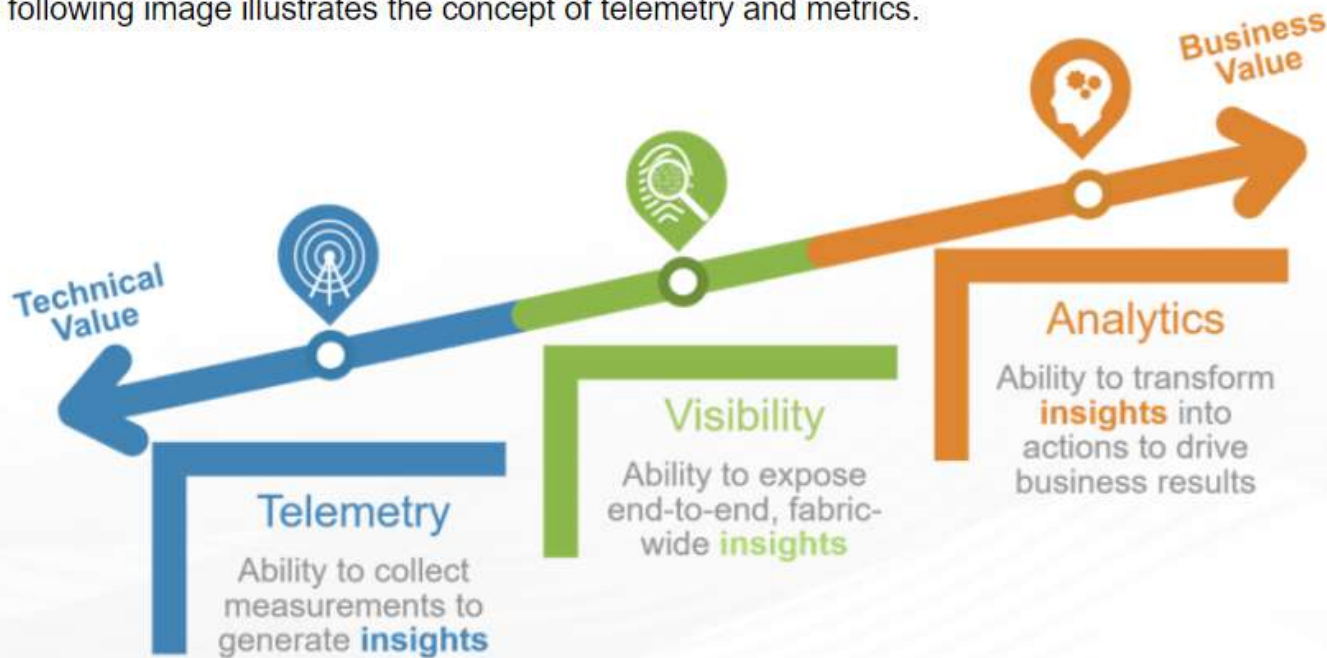


18. What did You Grasp?

Module 1: DevOps and Monitoring

1.9 Telemetry and Metrics

The following image illustrates the concept of telemetry and metrics.



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11. 1.4 Goals of Monitoring



12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



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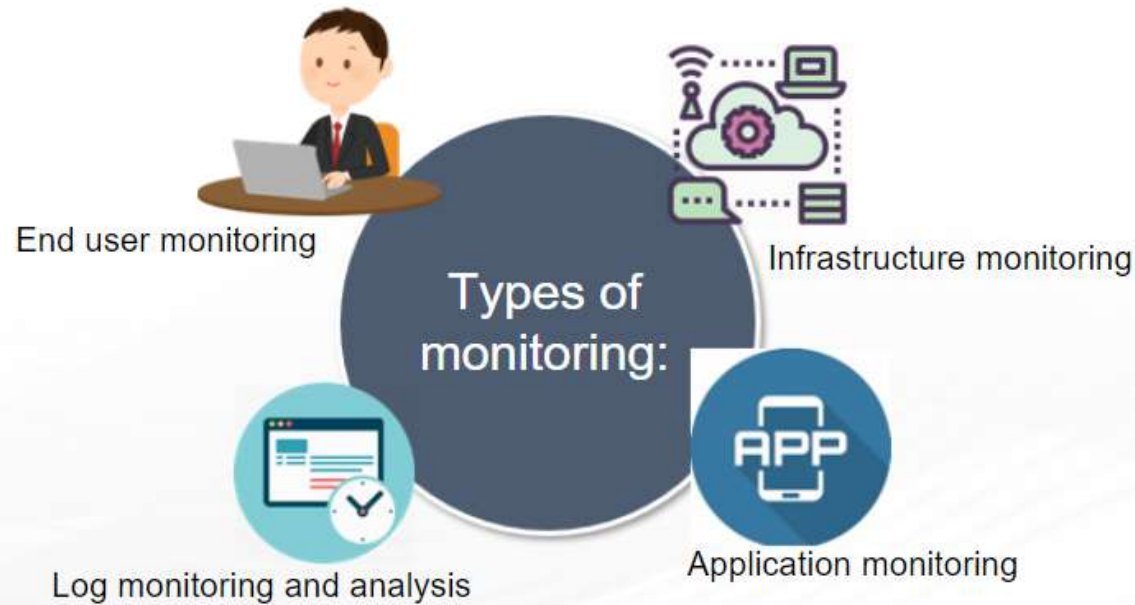


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Module 1: DevOps and Monitoring

1.10 Types of Monitoring



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12. 1.4 Goals of Monitoring (Contd...)



13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



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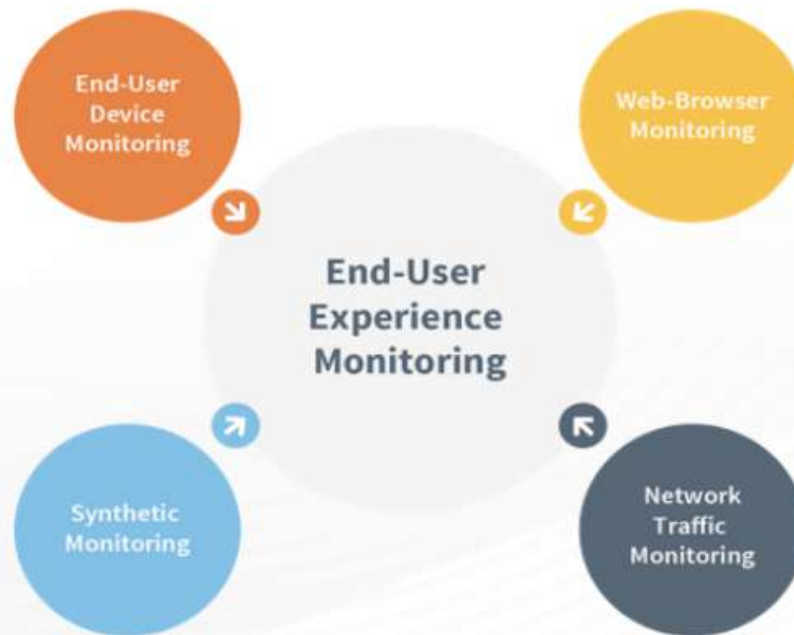
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Module 1: DevOps and Monitoring

1.10.1 Types of Monitoring: End User Monitoring

End user monitoring has been classified into four parts:



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13. What did You Grasp?



14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



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Module 1: DevOps and Monitoring

1.10.2 Types of Monitoring: Infrastructure Monitoring

The following image displays the infrastructure monitoring.



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14. 1.5 DevOps approach to Monitoring



15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitoring



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Module 1: DevOps and Monitoring

1.10.3 Types of Monitoring: Application Monitoring

The following image displays the application monitoring.



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15. 1.6 Continuous Monitoring



16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitoring



23. 1.10.3 Types of Monitoring: Application Monitoring



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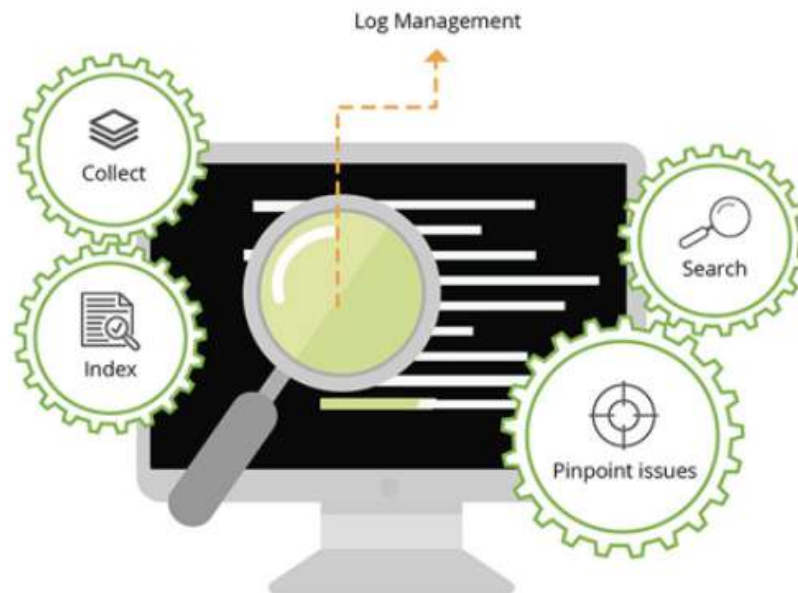
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Module 1: DevOps and Monitoring

1.10.4 Types of Monitoring: Log Monitoring and Analysis

The following image displays the log monitoring and analysis.



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16. 1.7 Network Operation Center (NOC)



17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitor...



23. 1.10.3 Types of Monitoring: Application Monitoring



24. 1.10.4 Types of Monitoring: Log Monitoring and Analysis



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Module 1: DevOps and Monitoring

What did You Grasp?



Which one is monitoring of events in a system?

- A) End user monitoring
- B) Infrastructure Monitoring
- C) Application monitoring
- D) Log Monitoring

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17. 1.8 Role of NOC in DevOps World



18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitoring



23. 1.10.3 Types of Monitoring: Application Monitoring



24. 1.10.4 Types of Monitoring: Log Monitoring and Analysis



25. What did You Grasp?



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Module 1: DevOps and Monitoring

In a Nutshell



In this module, you learnt:

- Basics of Monitoring
- Need of monitoring
- Approach of monitoring with respect to DevOps
- What is Network Operations Center
- What is the roles and responsibilities of NOC in DevOps world
- What is telemetry and metrics used for monitoring.
- Various aspects of Monitoring

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18. What did You Grasp?



19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitoring



23. 1.10.3 Types of Monitoring: Application Monitoring



24. 1.10.4 Types of Monitoring: Log Monitoring and Analysis



25. What did You Grasp?



26. In a Nutshell



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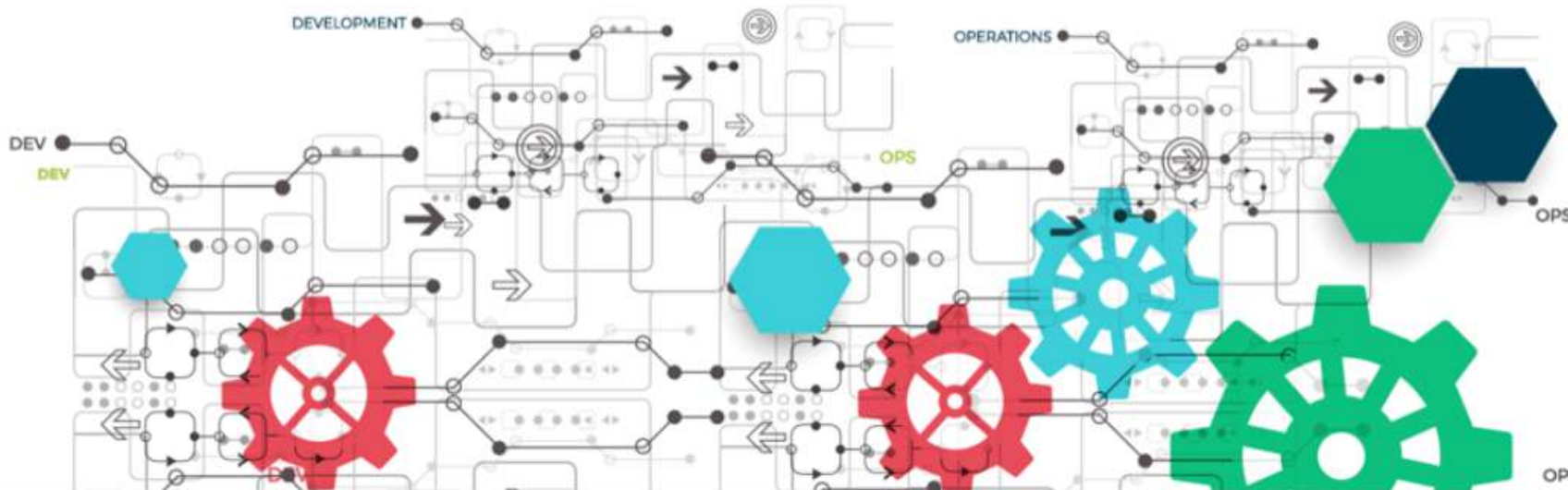
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End of Module

Next Module 2: End User Monitoring



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19. 1.9 Telemetry and Metrics



20. 1.10 Types of Monitoring



21. 1.10.1 Types of Monitoring: End User Monitoring



22. 1.10.2 Types of Monitoring: Infrastructure Monitoring



23. 1.10.3 Types of Monitoring: Application Monitoring



24. 1.10.4 Types of Monitoring: Log Monitoring and Analysis



25. What did You Grasp?



26. In a Nutshell



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