Project Synopsis

* + - 1. Title Of The Project: Cloud Automation Manager (Tentative)
      2. Area Of The Project: Cloud computing and Microservices
      3. Project Team Member Details:
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      4. Sponsoring Company Details:

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* + - 1. Details Of The External Guide:

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* + - 1. Motivation Of The Project:

IBM Cloud Automation Manager(CAM) is a cloud management solution on IBM Cloud Private (ICP) for deploying cloud infrastructure in multiple clouds with an optimized user experience. It enables enterprise IT architects to quickly develop fully automated multi-cloud, multi-architecture application services and publish them into the IBM Cloud Private service catalog for self service consumption by developers.

Cloud Event Management can receive events from various monitoring sources, either on premise or in the cloud. Events indicate that something has happened on an application or service. Cloud Event Management provides the ability to promptly and automatically identify and assess, events and incidents. It automatically prioritizes the critical incidents based on the criteria that the company set.

DevOps (Developers+Operations) teams want to be more self-sufficient at managing their own operational incidents when application performance is poor, or negatively impacted and get distracted by incomplete or irrelevant alert information.

Events captured by IBM Cloud Event Management are directed to deployed service instances of CAM and the conversational BOT developed using IBM Watson API is used to convey these events.The Bot can process natural language queries regarding the health status of the provisioned VM’s/ containers, publishing errors and warnings to the user and respond to different events received from event manager.

* + - 1. Scope of the project and what is not in the scope:

IBM Cloud Automation Manager(CAM) is used for deploying cloud infrastructure that can be present across different cloud providers (For example: Amazon Web Services(AWS), Google Cloud Platform, Microsoft Azure, etc). CAM helps to create and edit templates and services that implement common business patterns and to deploy them in cloud environment. The provisioned services include deployment of micro-services, Kubernetes, containers and virtual machines across multiple cloud providers.

Post deployment, users can manage and access the instances from the CAM user interface. The provisioned VM’s and micro-service containers over their lifetime can encounter multiple issues eg. low storage, thrashing, crashing of containers etc. The provisioned VM’s and containers publish different events and health status periodically.

The endeavour of the proposed project is two fold:

1. Leveraging IBM Cloud Event Manager to capture these events and direct them to deployed service instances of CAM.
2. Develop a conversation BOT by leveraging IBM Watson API’s that can process natural language queries regarding the health status of the provisioned VM’s/ containers, publishing errors and warnings to the user and respond to different events received from event manager.

The proposed project can only publish errors and warnings to the user and respond to different events received from event manager. Currently these errors are not analysed.

VIII. External interfaces/ Tools:

IBM Cloud Private (ICP): IBM Cloud Private is an application platform for developing and managing on-premises, containerized applications. It is an integrated environment for managing containers that includes the container orchestration Kubernetes, a private image repository, a management console, and monitoring frameworks.

IBM Watson: Watsonis a question-answering computer system capable of answering questions posed in [natural language](https://en.wikipedia.org/wiki/Natural_language)

Bluemix: a cloud platform as a service developed by [IBM](https://en.wikipedia.org/wiki/IBM). It supports several programming languages and services as well as integrated DevOps to build, run, deploy and manage applications on the cloud.

Cloud Event Management: automatically correlates events into prioritized incident views. It also notifies the right person at the right time, with integrated, automated notifications. This initiates a fast response and keeps everyone in sync. To quickly resolve incidents, it even matches in-context runbooks with events.

* + - 1. Module wise description:

Module -1:

1.Expedite problem determination:

Automatically ingest thousands of events from disparate sources and consolidate them into prioritized incidents that tell you what's really causing faults in your environment.

2.Bridge the gap between Developers and Operations teams:

Relieve pressure on teams by automatically routing incidents to the right people and bringing together Development and Operations teams to resolve complex faults fast.

3.Restore service quickly:

Resolve simple outages automatically, freeing up first responders to concentrate on faults that need their intervention.

4.Analyze and improve operational health:

Empower Operations leaders to improve efficiency. Observe behavior and capture knowledge, and turn these insights into operator guidance and automation, so incidents are resolved without intervention.

Module-2:

Analyze text to extract meta-data from content such as concepts, entities, keywords, categories, sentiment, emotion, relations, semantic roles, using natural language understanding. With custom annotation models developed using Watson Knowledge Studio, identify industry/domain specific entities and relations in unstructured text.

Chatbot conveys the health status of the provisioned Virtual machines, containers and publishing errors and warnings to the user and respond to different events received from event manager.

* + - 1. Hardware and Software Requirements:

Hardware Requirements: Memory: 32GB, Intel(R) Xenon(R) CPU.

Software Requirements: Dockers, Kubernetes, Ubuntu 16.04.

* + - 1. Future Enhancement:

Running analytics on the event data to derive patterns for meaningful insights

* + - 1. Study Curve:

Dockers, Kubernetes, Cloud computing, Node.js, Loopback, Javascript, Conversational AI

* + - 1. Company is providing
         1. Conceptual Guidance
         2. Hardware (Server)