



Certified Cloud AI Solutions Architect (CCASA)

CCASA Official Training

Officially Licensed Training





Welcome to the CCASA Official Training

Certified Cloud AI Solutions Architect
(CCASA-001) Preparation Course

Introduction to the CCASA

The **Certified Cloud AI Solutions Architect (CCASA)** is an ideal designation for a Cloud Solution Architect that is focused on solutions engineering or presales cloud design tasks supporting enterprise environments that are using or considering AI/ML services.

Cloud Professionals working with Solutions Integrators, Vendors, Cloud Service providers would be ideal candidates for this certification.

This is a cloud and AI agnostic certification and is relevant for anyone working with or selling cloud services into the enterprise.

- Certification is valid for three years. CEU credits for renewal.
- Certification cost is \$199.00 with one free retake.



Course Components

01

Domain 1 – AI/ML Fundamentals (35%)

02

Domain 2 – Solution Development and Proposals 30%)

03

Domain 3 – Customer Relationship Management(35%)



Learning Reinforcements

- AI Cloud Service Demos
- Whiteboard Design Discussions
- Sales Discussions
- Example Scenarios
- Documentation Links
- Study Guide eBook
- Practice Questions
- Exam Preparation
- Community Sites



Why Getting Certified is Important

The CCASA can enable you to:

- Provide notice that your **“Hitting above the belt”** from an AI solutions perspective (Baseline)
- Shows your competence in sales-driven AI cloud opportunities.
- Accomplishment in sharing on social media and with prospective employers.



Joseph Holbrook

Joseph Holbrook, CLO of Techcommanders in Jacksonville, FL

- Over 10 Years of enterprise commercial and government pre-sales and solutions architect experience
- AWS Certified and GCP Certified
- BAH AI Practitioner and AI Aware
- Brocade Distinguished Architect (BDA)
- EMC Proven Professional – Expert – Cloud (EMCCE)
- Published Course Author on O'Reilly Media, Udemy, LinkedIn Learning, Pearson, and several other platforms
- Published Book Author – Architecting Enterprise Blockchain Solutions
- Prior US Navy Veteran



Why take the CCASA Certification Exam Course

Top Reasons to Join in



Why Take this Certification Course?

- You're considering taking the challenging exam and need some help preparing.
- You want to understand the detailed objectives.
- You want to test your knowledge with some practice questions.
- You want the baseline to become a great AI-focused presales solutions engineer/architect!
- You want to obtain an AI-focused certification and distinguish yourself from your peers.



Introduction to the CCASA

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Exam Domains and Objectives

Tested subject areas



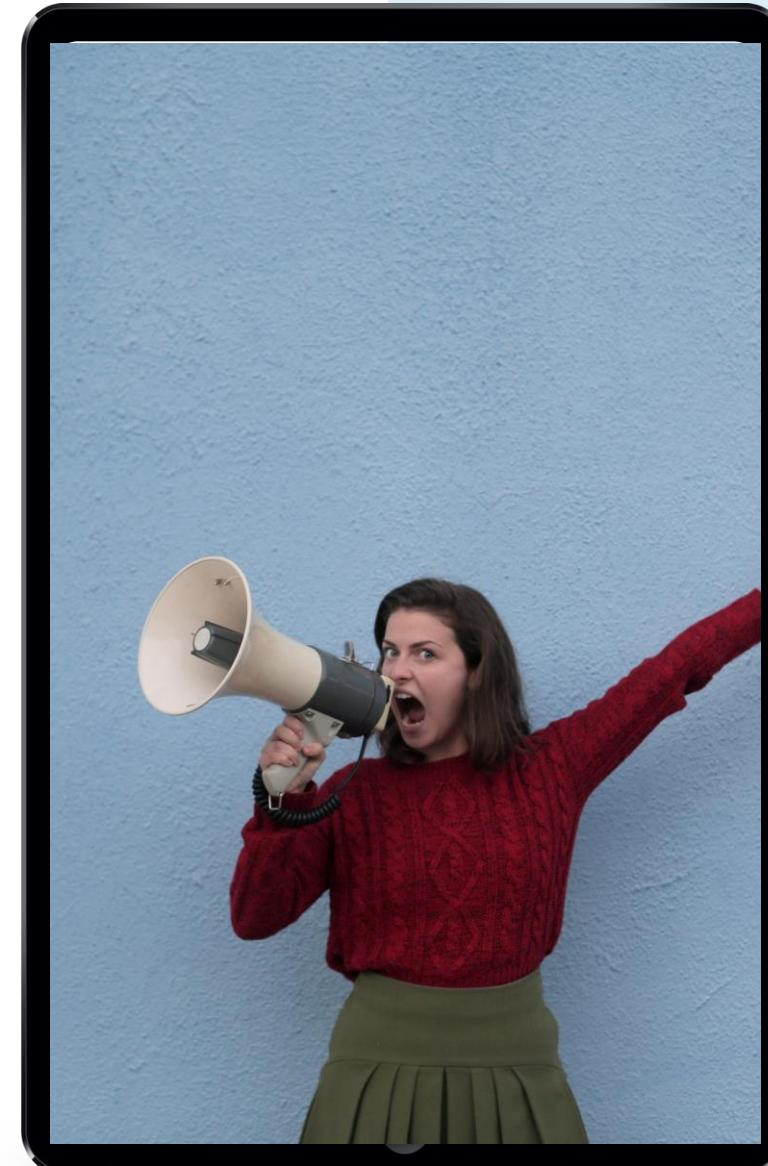
Domain Coverage

The course covers the Full Domain Coverage of the CCASA exam.

- Domain 1 – AI/ML Fundamentals
- Domain 2 – Solutions Development and Proposals
- Domain 3 – Customer Relationship Management

Full objectives are downloaded and located here.

<https://www.digitalcrestinstitute.com/CCASAContent>



Importance of AI in Sales/Solutions Engineering

Discussion



Topic Discussion



Course Materials

Course Content to download



Course Content Download

Welcome to the Course Content!

- Download eBook study guide
- Exam Objectives
- Course Presentation
- Other Resources

We have a lot to cover so let's get started!

www.digitalcrestinstitute.com/ccasaexam





Domain 1 – AI/ML Fundamentals

Module 1 – CCASA Exam

Understanding AI and ML services and use cases.



Module 1 Sections

01 Section 1.1 - Core Concepts

02 Section 1.2 - AI/ML Value Proposition

03 Section 1.3 - AI/ML Landscape



Core Concepts

Section 1.1



Section 1.1 Lesson Overview

What is AI and ML

What is Deep learning

Types of Machine Learning

Compare and Contrast AI and ML

Generative AI,
Predictive AI,
Agentic AI, and
others.

Natural Language Processing (NLP)

Open-source libraries

Understanding Algorithms

Programming Languages (AI focused)

Whiteboard - How AI Works





What is AI/ML?

Ensuring the Fundamentals

Lesson Key Objectives

What is AI and ML?

1

What is a comparison for AI vs ML?

2

What is the primary goal of AI?

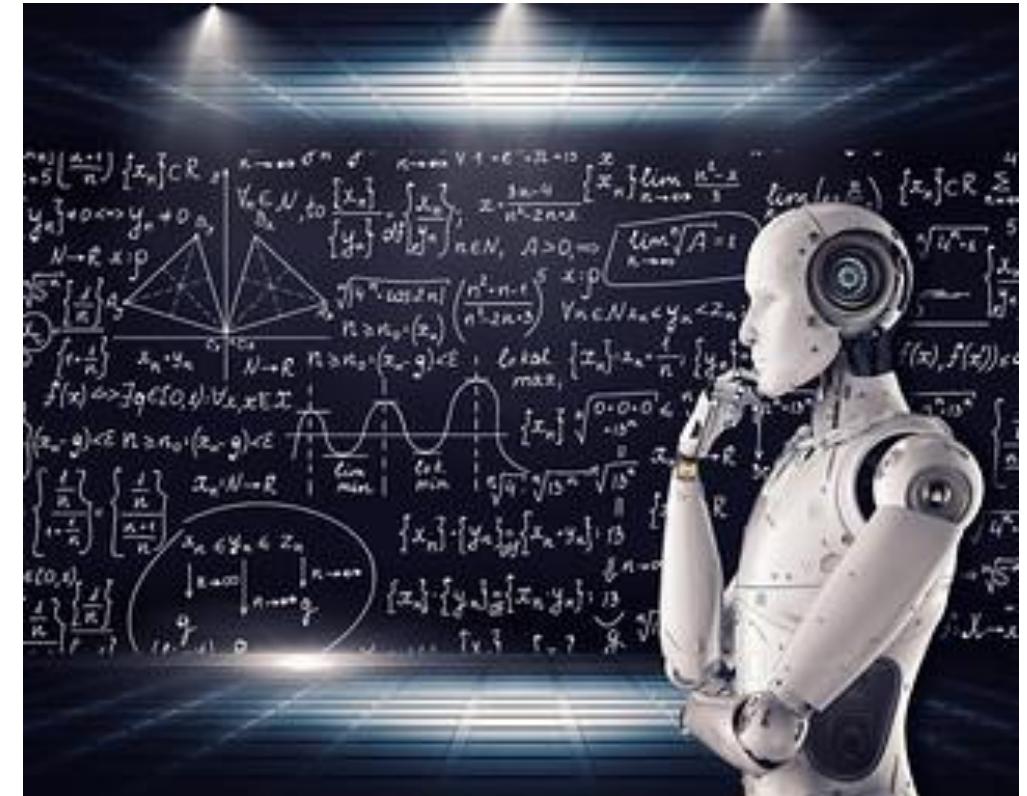
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What is AI/ML?

Artificial Intelligence (AI) is a broad field that encompasses the creation of machines capable of performing tasks that typically require human intelligence. It aims to create machines that can mimic human cognitive abilities.

- The **main goal** of using AI is to create systems that can perform tasks that typically require human intelligence.
- **Common Examples:** Problem-solving, learning, reasoning, perception, language understanding.



What is AI/ML?



Machine Learning (ML) is a subfield of AI that enables systems to learn from data without being explicitly programmed. ML provides algorithms that allow computers to improve their performance on a task through experience (data).

ML works as follows: Data -> Learning Algorithm -> Model -> Predictions/Decisions.

Examples: Spam filtering, image classification, recommendation systems.

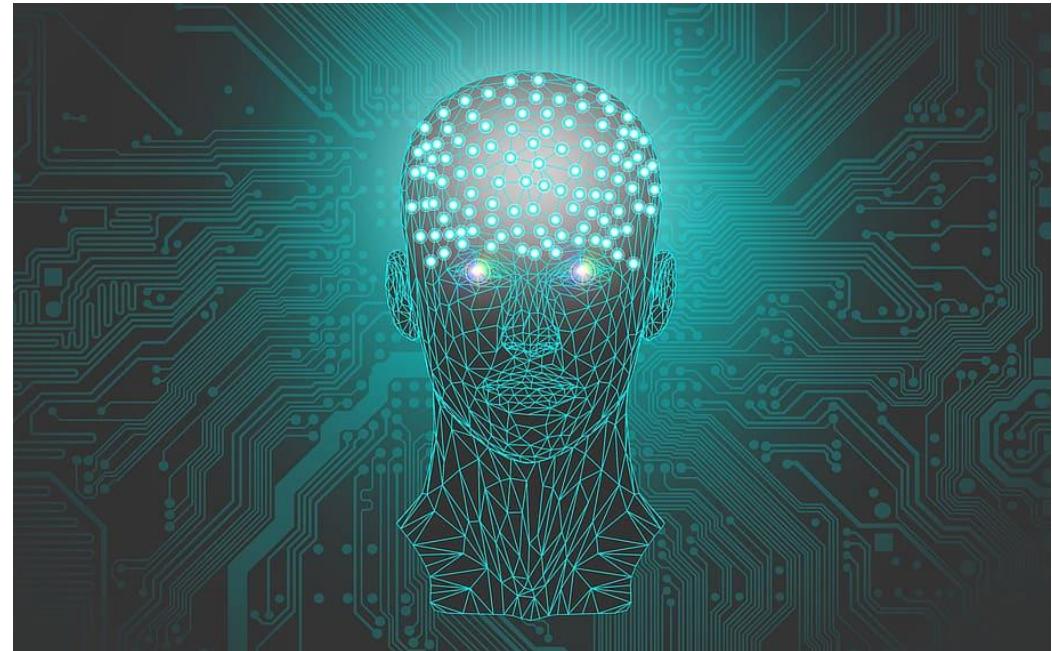


What is AI/ML?

In summary

AI is the broader concept of intelligent machines,
while ML is a specific technique to achieve AI.

- ❑ **Goal:** AI aims to mimic human cognitive functions.
ML aims to enable machines to learn from data.
- ❑ **Relationship:** All machine learning is AI, but not all AI is machine learning. There were AI systems before the widespread adoption of ML, and AI approaches still don't heavily rely on it (though ML is dominant today).





What is Deep Learning

Ensuring the Fundamentals

Lesson Key Objectives

What is Deep Learning?

1

What are Artificial Neural Networks (ANNs)?

2

What are Neurons in Deep Learning?

3

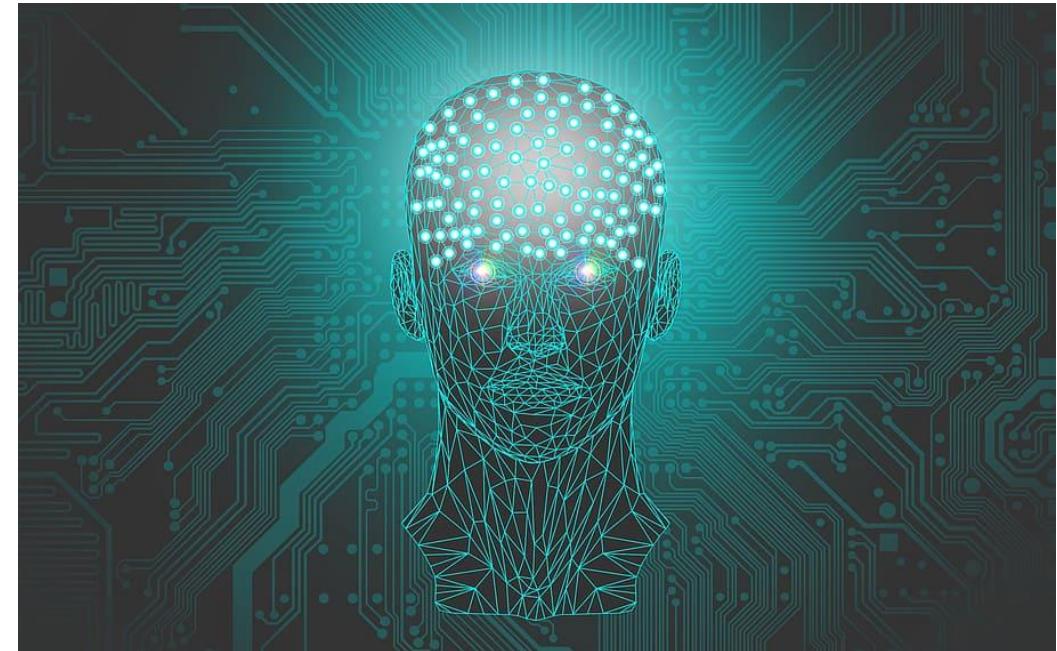


What is Deep Learning?

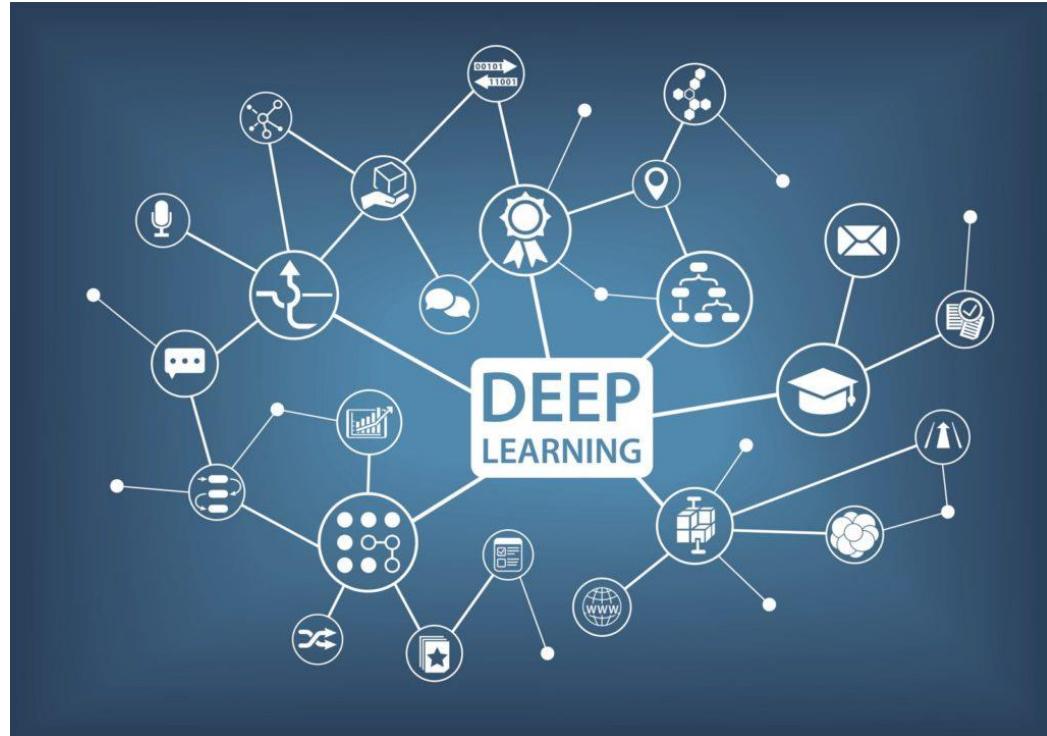
Deep Learning is a subfield of Machine Learning that utilizes artificial neural networks with multiple layers (hence "deep") to extract complex patterns from data.

The structure and function of the human brain inspired Deep Learning.

- ❑ **Applications:** Image recognition, natural language processing, speech recognition, etc.
- ❑ **Key Component:** Artificial Neural Networks (ANNs)



What is Deep Learning?



- Artificial Neural Networks (ANNs) are Neurons (or Perceptrons)—inputs, weights, bias, activation function, and output.
- The network structure has interconnected neurons (input layer, hidden layer, output layer).
- Learning happens by adjusting the weights and biases based on data.



What is Deep Learning?

Neurons (or Perceptrons)—inputs, weights, bias, activation function, and output.

In Artificial Intelligence, specifically neural networks and deep learning, **artificial neurons** serve as the fundamental building blocks for processing information.

Inspired by their biological counterparts, these mathematical functions receive input signals, process them based on their internal weights and an activation function, and then produce an output signal.

By connecting vast numbers of these neurons in layers, AI models can learn intricate patterns and representations from data, enabling them to perform tasks like image recognition, natural language understanding, and much more.

They are the tiny decision-makers allowing AI to "think" and learn.





What are the Machine Learning Approaches?

Supervised, Unsupervised and Reinforcement

Lesson Key Objectives

What is Machine Learning?

1

What are Supervised and Unsupervised Learning

2

What is Reinforcement Learning?

3



What are the Machine Learning Approaches?

Machine Learning (ML) is a subfield of Artificial Intelligence (AI) that focuses on enabling computers to learn from data without being explicitly programmed.

- ❑ Instead of writing specific rules for every possible scenario, ML algorithms identify patterns, extract insights, and build models from data.
- ❑ These models can then make predictions, classifications, or decisions on new, unseen data.
- ❑ **Three main Types of ML Learning:** Supervised, Unsupervised, and Reinforcement

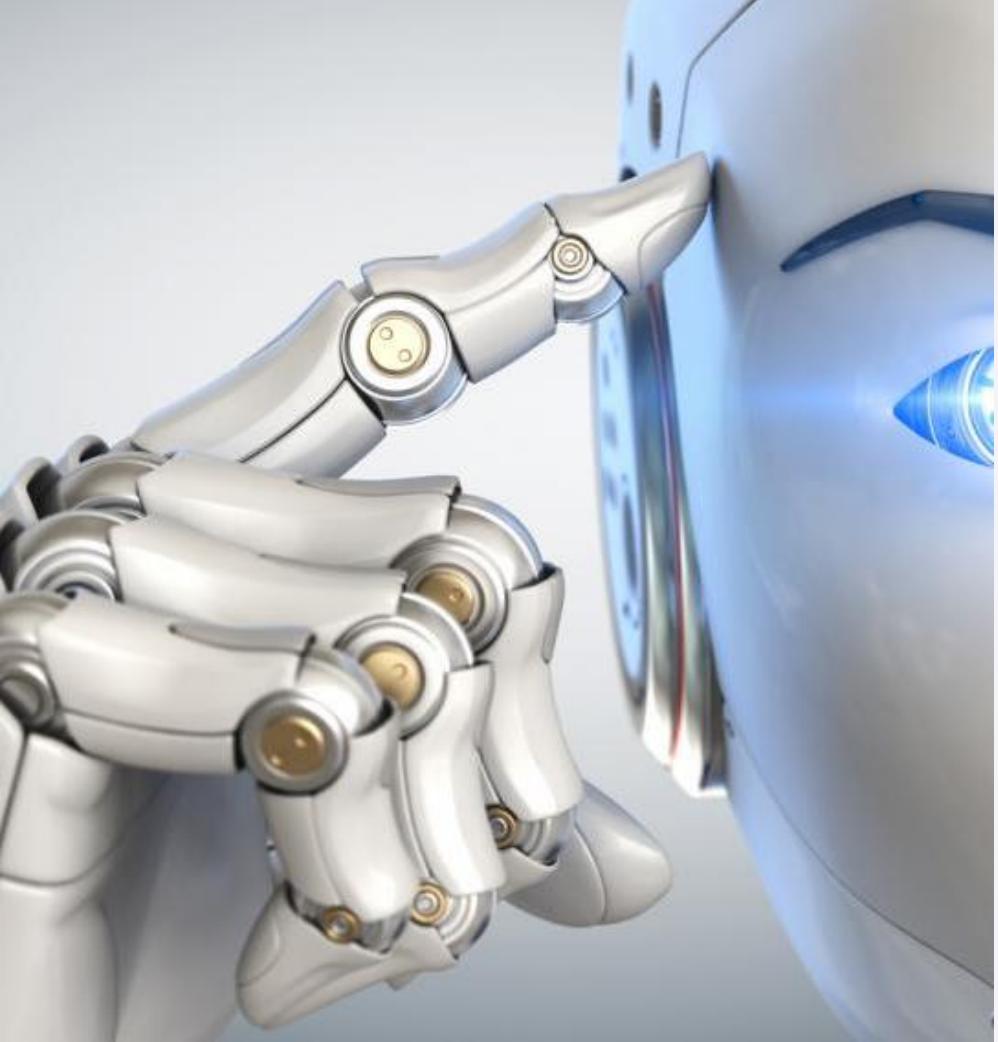


What are the Machine Learning Categories?



Supervised Learning: The algorithm learns from **labeled data**, meaning it provides the correct output for each input.

- ❑ The goal is to learn a mapping function to predict the output for new, unseen inputs. Examples include image classification (identifying cats vs. dogs) and regression (predicting stock prices).
- ❑ **Unsupervised Learning:** The algorithm learns from **unlabeled data**, trying to find hidden patterns or structures without prior guidance.
- ❑ Examples include clustering (grouping customers with similar purchasing behavior) and dimensionality reduction (simplifying complex data).



What are the Machine Learning Categories?

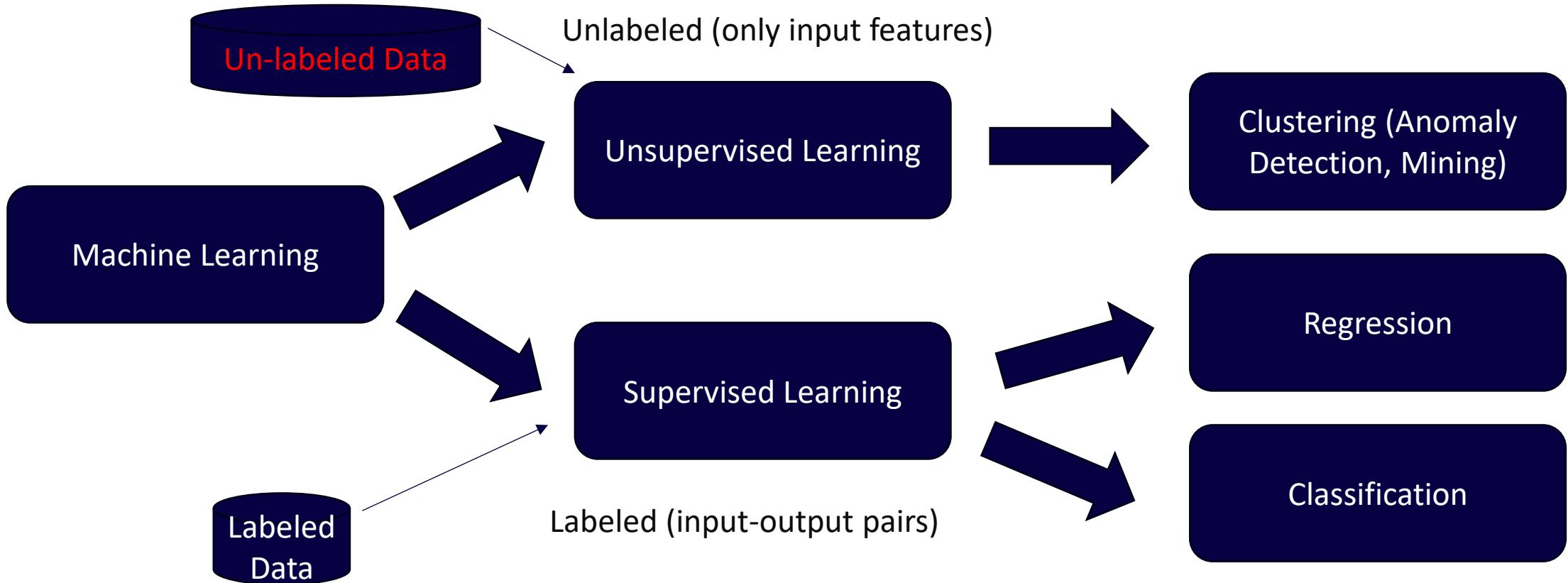
When understanding the difference between supervised learning and unsupervised learning, the primary difference is the type of input data used to train the model.

- Supervised learning uses labeled training datasets to try to teach a model a specific, pre-defined goal.**

- By comparison, unsupervised learning uses unlabeled data and operates autonomously to try and learn the data structure without explicit instructions.**

What are the Machine Learning Categories?

Choosing Between Supervised and Unsupervised.



What are the Machine Learning Categories?

Reinforcement Learning: An agent learns to behave in an environment by receiving rewards or penalties for its actions. Regression algorithms predict a real or continuous value, where the algorithm detects a relationship between two or more variables.

The goal is to develop a policy that maximizes the cumulative reward.

- ❑ For example, a regression task might be predicting a salary based on work experience.
- ❑ For instance, a supervised learning algorithm would be fed inputs related to work experience (e.g., length of time, the industry or field, location, etc.) and the corresponding assigned salary amount.
- ❑ After the model is trained, it could be used to predict the average salary based on work experience.



What are Machine Learning Types?

Choosing Between Supervised and Unsupervised.





Compare and Contrast AI and ML

Comparing Side by Side

Lesson Key Objectives

Compare and Contrast AI/ML

1

What is the relationship of ML to AI?

2

What are application examples of AI and ML?

3



Compare and Contrast AI/ML

Artificial Intelligence (AI) and Machine Learning (ML)

Feature	Artificial Intelligence (AI)	Machine Learning (ML)
Definition	The broad field of creating machines that can perform tasks requiring human intelligence	A subfield of AI that enables systems to learn from data without explicit programming
Scope	A much wider field encompasses various approaches to achieve "intelligent" behavior.	A specific technique within AI focused on learning from data.
Goal	To create machines that can mimic human cognitive abilities (reasoning, learning, problem-solving, perception, language understanding).	To enable machines to learn patterns from data and make predictions or decisions.
Relationship	ML is a subset of AI	Machine learning (ML) is a powerful tool and a common approach used to achieve artificial intelligence (AI).
Examples	Robotics, expert systems, game-playing AI (including those not using ML), natural language understanding systems (some rule-based), computer vision systems (some non-ML).	Spam filtering, image classification, recommendation systems, fraud detection, machine translation (often using deep learning, a subfield of ML), autonomous driving (perception and decision-making).

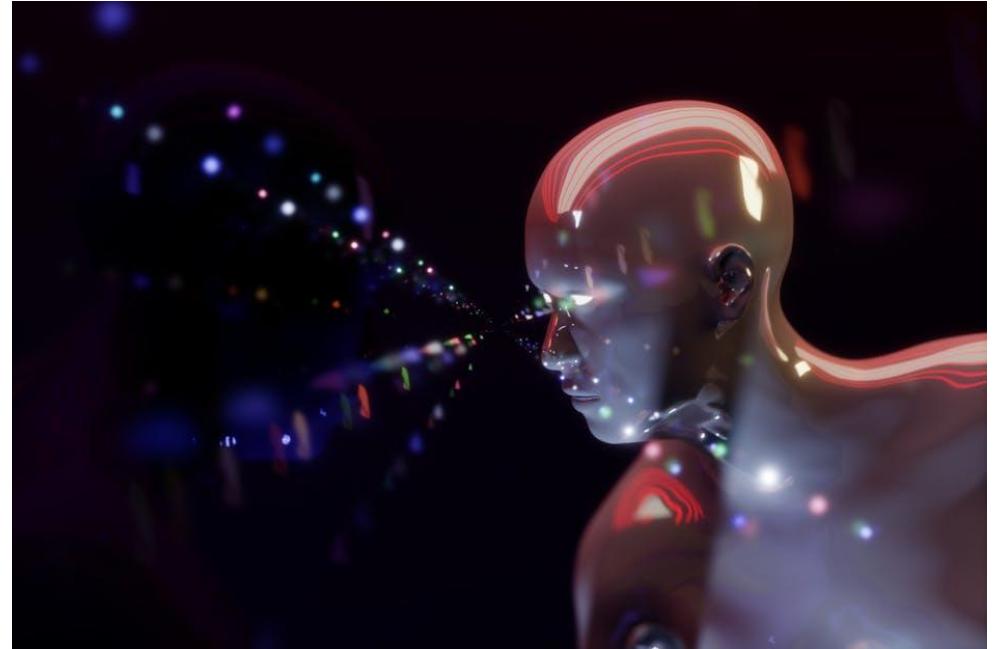


Compare and Contrast AI/ML

Think of AI as the overarching ambition – creating truly intelligent machines.

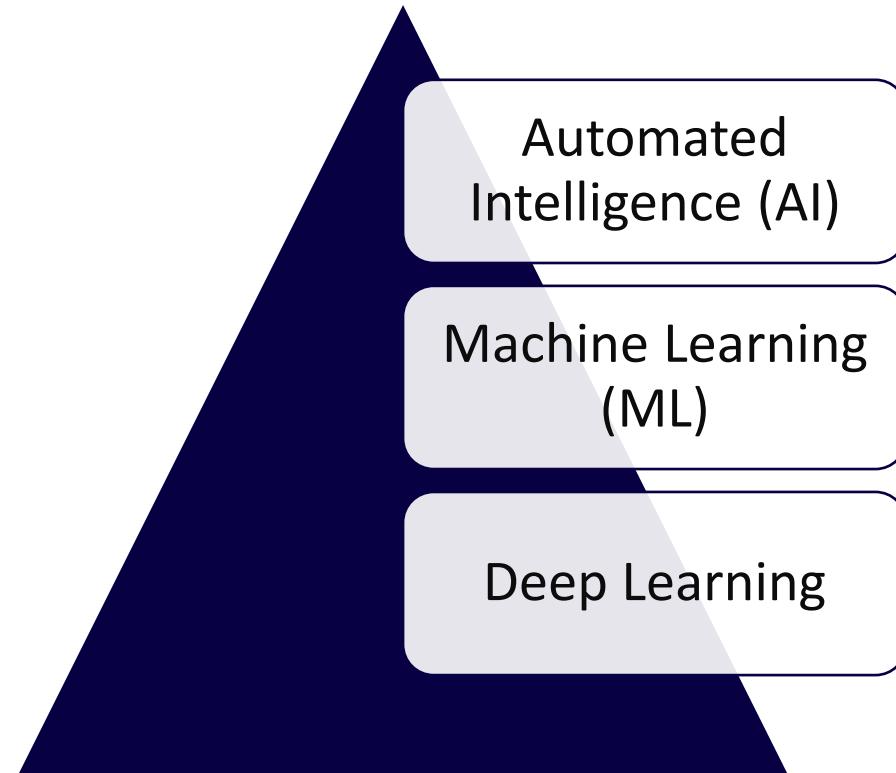
Machine Learning is one of the most successful and widely used pathways to achieve that ambition.

While AI encompasses a broader range of techniques, machine learning (ML) has become a dominant force in modern AI due to its ability to handle complex data and automatically learn intricate patterns.



What are Machine Learning Types?

In Summary





Generative AI, Predictive AI, Agentic AI, and others.

Describe and Identify AI Categories

Lesson Key Objectives

Compare contrast categories of AI

1

Identify core functions for each category of AI.

2

What are application examples for each category?

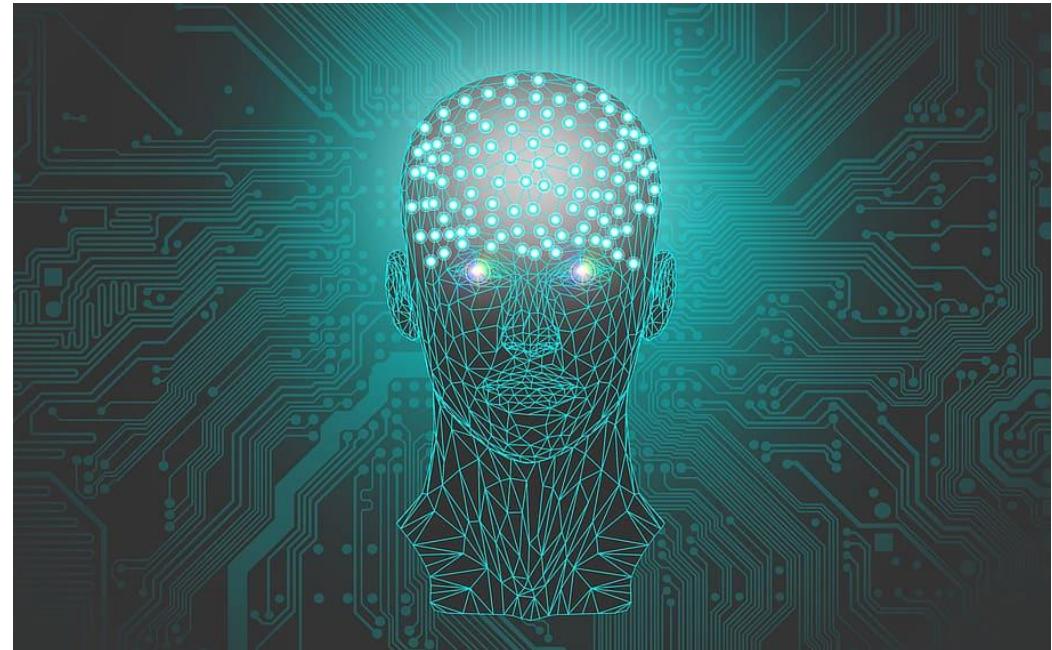
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Generative AI, Predictive AI, Agentic AI, and others.

Generative AI is a type of artificial intelligence that can produce new content, such as text, images, audio, and video, by learning from vast amounts of existing data. It identifies patterns and structures within the data and then uses this knowledge to create original outputs that often resemble human-created content.

- ❑ Generative AI has numerous applications, ranging from generating creative content and assisting with writing and coding to powering chatbots and creating personalized experiences.
- ❑ Generative AI utilizes models to generate new data instances that closely resemble the training data.



Generative AI, Predictive AI, Agentic AI, and others.

Predictive AI is a branch of artificial intelligence focused on forecasting future outcomes based on historical and current data. It employs statistical analysis and machine learning techniques to identify patterns, trends, and relationships within data.

- ❑ Predictive AI models can estimate the likelihood of future events, behaviors, or values, enabling proactive decision-making and strategic planning across various industries.
- ❑ AI models that predict future outcomes or classify current data based on historical patterns.



Generative AI, Predictive AI, Agentic AI, and others.

Agentic AI refers to artificial intelligence systems that can operate autonomously to achieve specific goals without constant human oversight.

These systems can perceive their environment, reason about complex situations, make independent decisions, and take actions to reach their objectives.

- ❑ Agentic AI can learn from its experiences and adapt its behavior over time, making it a dynamic and proactive intelligence.
- ❑ AI systems are designed to perceive their environment, make decisions, and take actions to achieve specific goals. Often characterized by autonomy and interaction with the environment.



Generative AI, Predictive AI, Agentic AI, and others.

Explainable AI (XAI): Focuses on making AI decisions transparent and understandable to humans.

Conversational AI: Enables human-like interactions through natural language (chatbots, virtual assistants).

Reasoning and Planning AI: Focuses on logical inference and decision-making in complex scenarios.



Generative AI, Predictive AI, Agentic AI, and others.

Compare AI Categories

AI Category	Generative	Predictive	Agentic	Explainable	Conversational	Reasoning and Planning
Core Function	Creates new data instances that resemble the training data.	Forecasts future outcomes or classifies current data based on historical patterns.	Perceives an environment, makes decisions, and takes actions to achieve goals.	Makes AI decisions and reasoning transparent and understandable to humans.	Simulates human-like conversations through natural language	Solves complex problems through logical inference, deduction, and strategic planning.
Primary Output	New data (images, text, audio, video, code, etc.).	Predictions (numerical values, categories, probabilities).	Actions, decisions, and behaviors within an environment.	Explanations, justifications, visualizations of the AI's decision-making process.	Natural language responses, dialogue flow, understanding of user intent.	Plans, sequences of actions, solutions to problems.



Generative AI, Predictive AI, Agentic AI, and others.

Compare AI Categories

AI Category	Generative	Predictive	Agentic	Explainable	Conversational	Reasoning and Planning
Focus	Novelty, creativity, data synthesis.	Prediction accuracy, pattern recognition for forecasting or categorization	Autonomy, interaction with an environment, goal achievement	Trustworthiness, accountability, interpretability of AI systems	User experience, natural interaction, understanding and responding to language.	Problem-solving, reasoning, decision-making
Learning Paradigm	Often uses unsupervised learning and self-supervised learning	Primarily uses supervised learning (regression and classification).	Primarily uses reinforcement learning, but can also use supervised and unsupervised learning	Not a specific learning paradigm but a goal applied across different ML/AI techniques.	Often uses supervised learning and reinforcement learning.	Can use various methods including symbolic AI, knowledge representation, search algorithms, and sometimes machine learning.
Applications	Image generation, text generation, music composition, drug discovery, etc.	Sales forecasting, fraud detection, medical diagnosis, credit risk, etc	Autonomous vehicles, robots, game-playing agents,	High-stakes decision-making, regulatory compliance, and auditing AI systems.	Chatbots, virtual assistants, customer service automation, language translation.	Automated theorem proving, logistics planning, scheduling, game playing.





Natural Language Processing (NLP)

Describe and use cases

Lesson Key Objectives

What is Natural Language Processing (NLP)

1

What applications are use cases for NLP?

2



Natural Language Processing (NLP)

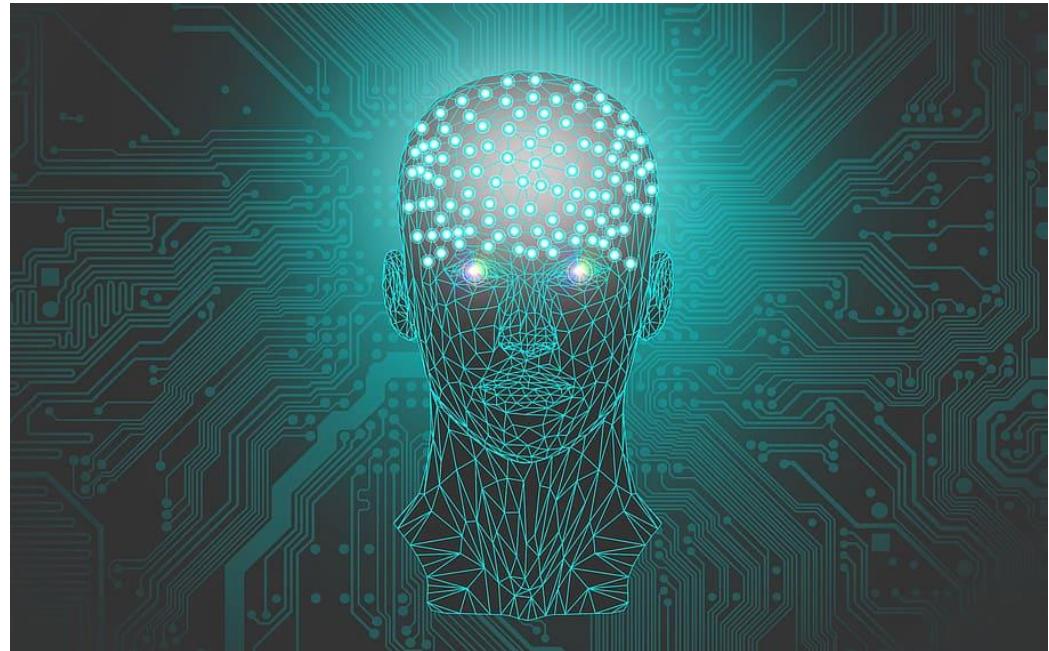
Natural Language Processing (NLP) is a branch of artificial intelligence (AI) that enables computers to understand, interpret, and generate human language.

Key Tasks are:

Text Analysis: Tokenization (splitting text into words), Part-of-speech tagging (identifying nouns, verbs, etc.) Named entity recognition (finding names of places, people, etc.)

Language Generation: Creating human-like text.

Applications used for are Machine Translation, Sentiment Analysis, Chatbots, Voice Assistants, Search Engines





Open-Source Libraries

What is Open Source and its use with AI

Lesson Key Objectives

What is Open Source?

1

What are examples of Open Source Libraries?

2



Open-Source Libraries

Collections of pre-written code and tools are available for free use and modification.

The main benefits are commonly:

- ❑ Accelerate development
 - ❑ Large community support
 - ❑ Cost-effective
 - ❑ Wide range of tools



Open-Source Libraries

Popular Open-Source Libraries are

- ❑ **TensorFlow (Google)**: For deep learning
- ❑ **PyTorch (Facebook)**: For deep learning
- ❑ **Scikit-learn**: For machine learning algorithms
- ❑ **NLTK and spaCy**: For natural language processing
- ❑ **Hugging Face**: Transformers library for NLP





Understanding Algorithms

What are they and what are common ones to know

Lesson Key Objectives

What is an Algorithm?

1

What are the different Algorithms?

2

What is a Neural Network?

3



Understanding Algorithms

What are AI algorithms?

A computer system that follows rules or instructions to solve a problem. AI algorithms are the foundation of how AI systems learn and make decisions. Machine learning algorithms enable computers to learn from data without explicit programming.

Machine Learning Algorithms:

- Supervised learning** uses labeled data to train models for prediction or classification tasks.
- Unsupervised learning** discovers hidden patterns and structures in unlabeled data.
- Reinforcement learning** trains agents to make optimal decisions in an environment by learning from rewards and penalties.



Understanding Algorithms

What are algorithms? (Cont)

Deep Learning Algorithms (Neural Networks):

Inspired by the human brain, deep learning algorithms use artificial neural networks with multiple layers to extract complex features from data.

- ❑ **Convolutional Neural Networks (CNN)** excel at processing grid-like data, such as images, by using convolutional layers to detect spatial hierarchies of features.
- ❑ **Recurrent Neural Networks (RNNs)** are designed to handle sequential data, like text or time series, by maintaining an internal memory of past information.
- ❑ **Transformers** are a more recent architecture that leverages attention mechanisms to weigh the importance of different parts of the input sequence, proving highly effective for natural language processing and beyond. (Relies on Attention to Weigh Importance)





Programming Languages (AI Focused)

Key Languages to know for exam

Lesson Key Objectives

What are the Key Programming Languages used in AI?

1

Identify use case for the AI programming languages.

2



Programming Languages (AI Focused)

Key Programming Languages

Python:

- ❑ Dominant language for AI
- ❑ Extensive libraries (TensorFlow, PyTorch, scikit-learn)
- ❑ Readable syntax

R:

- ❑ Strong in statistical computing
- ❑ Used in data analysis and visualization



Programming Languages (AI Focused)

Key Programming Languages

Java:

- Enterprise-level applications
- Used in some NLP systems

C++:

- High-performance language
- Used for optimizing AI models





How AI Works

Whiteboard

Lesson Key Objectives

How does a service like ChatGPT or Google Bard (Gemini)work?

1

What are the two stages of AI training?

2



Putting it all together

Whiteboard Discussion



AI/ML Value Proposition

Section 1.2



Section 1.2 Lesson Overview

Benefits of AI/ML
solutions for
businesses

AI in Business
Processes

AI/ML adoption
challenges and
limitations

4 Pillars of AI
Strategy

Explain the
importance of data
in AI/ML solutions

Data Sources and
APIs for AI/ML

Discussion –
Providing Value

Demonstration -
Google Cloud

Demonstration -
AI-Powered Value
Proposition Canvas
Generators

Whiteboard - AI
ML Project
Walkthru





Benefits of AI/ML for Business

Key Benefits

Lesson Key Objectives

What are the Key Benefits that AI can bring to the table?

1



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business

1. Enhanced Decision-Making:

- Faster Decision Making:** AI/ML algorithms can process and analyze large datasets much quicker and more accurately than humans, identifying patterns and correlations that might be missed.
- Data-driven insights:** AI/ML extracts meaningful insights from data, enabling businesses to make informed decisions based on evidence rather than intuition. For instance, analyzing customer feedback using AI can reveal key areas for product improvement
- Predictive analytics:** ML models can forecast future trends and outcomes, allowing businesses to anticipate market changes, optimize inventory, and manage risks more effectively



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business

2. Increased Efficiency and Productivity:

- Automation of repetitive tasks:** AI can automate routine and time-consuming tasks like data entry, report generation, and invoice processing, freeing up employees to focus on more strategic and creative work.
- Process optimization:** AI can analyze existing workflows to identify bottlenecks and inefficiencies, suggesting ways to streamline operations and improve productivity.
- Reduced errors:** Automating tasks with AI minimizes the risk of human error, leading to more accurate and reliable outcomes in areas like financial reporting and quality control.



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business

3. Improved Customer Experience:

- Personalized recommendations:** AI can analyze customer behavior and preferences to offer tailored product recommendations, marketing messages, and service interactions, enhancing customer satisfaction and loyalty.
- Faster and more efficient customer support:** AI-powered chatbots and virtual assistants can respond instantly to customer queries, resolve simple issues 24/7, and route complex inquiries to human agents, improving response times and overall service quality.
- Proactive customer service:** AI can analyze customer data to predict potential issues or needs, allowing businesses to offer solutions or assistance proactively, leading to a better customer experience.



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business.

4. Cost Reduction:

- Automation of tasks:** By automating tasks, businesses can reduce the need for manual labor, leading to significant cost savings in the long run.
- Optimized resource allocation:** AI can help optimize the use of resources, such as energy consumption in buildings or staffing levels based on predicted demand, leading to lower operational costs.
- Predictive maintenance:** In industries like manufacturing, AI can predict equipment failures, allowing for proactive maintenance that prevents costly downtime and repairs



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business.

5. Innovation:

- Unlocking new product and service possibilities:** AI can analyze data in novel ways, uncovering opportunities for new products, services, or business models that might not be apparent through traditional analysis.
- Enhancing existing offerings:** AI can be integrated into existing products and services to add new features and functionalities, making them more valuable to customers.
- Improving research and development:** AI can accelerate research processes by analyzing large volumes of scientific data, identifying patterns, and generating hypotheses, leading to faster breakthroughs.



Benefits of AI/ML for Business

Identify Key Benefits of using AI in your Business.

6. Risk Managed and Security Enhancements:

- Fraud detection:** AI algorithms can analyze transaction data in real-time to identify suspicious patterns and prevent fraudulent activities, protecting businesses and customers.
- Cybersecurity:** AI can enhance cybersecurity by detecting anomalies in network activity, identifying potential threats, and responding to security breaches more effectively.
- Risk assessment:** AI can analyze various data sources to assess and predict potential risks in finance, supply chain, and project management, allowing for proactive mitigation strategies.





AI in Business Processes

Where to Implement AI

Lesson Key Objectives

What are the common business processes that AI can be implemented around?

1



AI in Business Processes

AI is being implemented across various business processes, transforming how companies operate and create value:

Some common examples

- Customer Service:** Chatbots, Personalization, Sentiment Analysis
- Sales and Marketing:** Lead Classifications, Personalized Marketing, Dynamic Pricing, Content Creation
- Human Resources:** Talent Acquisition, Employee Onboarding, HR Chatbots, Performance Management
- Finance and Accounting:** Fraud Detection, Invoice Processing, Risk Assessment, Forecasting



AI in Business Processes

Some common examples (Continued)

- ❑ **Operations and Supply Chain:** Demand Forecasting, Supply Chain Optimization, Quality Control, etc
- ❑ **Information Technology:** Cybersecurity, Automated Support, Software Development, Predictive Management





AI/ML Adoption Challenges and Limitations

Understanding what AI can and can't perform effectively.

Lesson Key Objectives

What are the adoption challenges for AI?

1

What are the limitations for AI?

2



AI/ML Adoption Challenges and Limitations

Adopting AI/ML solutions can bring significant benefits, but businesses often encounter challenges and limitations during the implementation and ongoing use of these technologies.

Here are some common ones

- Data-Related Challenges:** Data Quality, Data Availability, Data Volume, Data Privacy, Data Bias, Data Security
- Technical Challenges:** Integration, Model Interoperability, Model Drift, Resources
- Organizational and Strategic Challenges:** Lack of Strategy, Ethical Considerations, Resistance to Change, ROI Concerns, Collaboration, etc.



AI/ML Adoption Challenges and Limitations

Adopting AI/ML solutions can bring significant benefits, but businesses often encounter limitations.

Here are some common ones

- ❑ AI Model Limitations:** Overfitting, Underfitting, Sensitivity. Limited Generalization, Manual Engineering (Features)
- ❑ Organization Technical Expertise:** Limited or no technical leadership in AI or development practices.
- ❑ Resource Limitations:** Lack of Funding Allocation





4 Pillars of AI Strategy

Understanding what the Key Pillars are

Lesson Key Objectives

What are the Four Key Pillars?

1

What is the goal of a Pillar according to Gartner?

2

What pillars emphasize Risk?

3



4 Pillars of an AI Strategy

The four pillars of an effective AI strategy provide a comprehensive framework for organizations looking to leverage artificial intelligence to achieve their business goals.

According to Gartner, these pillars are:

Vision

Value
Realization

Risk
Management

Adoption
Plans



4 Pillars of an AI Strategy

1. **Vision:** Establish a clear and compelling vision for how AI will be integrated into the organization and aligned with its overarching business strategy.
2. **Value Realization:** Focuses on identifying and quantifying the potential value that AI can bring to the organization.
3. **Risk Management:** This pillar emphasizes the importance of proactively addressing the potential risks of AI implementation, including ethical considerations, data privacy and security, regulatory compliance, and possible biases in AI systems.
4. **Adoption Plans** - This involves developing detailed plans for how AI will be adopted and integrated across the organization.





Explain the Importance of Data in AI/ML Solutions

Data drives organizations and AI.

Lesson Key Objectives

What is data so important to AI?

1

Data serves as what in an AI system?

2

What does “garbage in, garbage out mean?

3

What actually determines the capabilities, accuracy, and reliability of data?

4



Explain the Importance of Data in AI Solutions

Data is the **lifeblood of AI/ML solutions.**

The **quality, quantity, and characteristics** of the data directly determine the capabilities, accuracy, and reliability of these intelligent systems.

- ❑ Without good data, even the most sophisticated algorithms will be ineffective.
- ❑ Therefore, a **strong focus** on data acquisition, cleaning, preprocessing, and management is a prerequisite for building successful AI/ML applications.
- ❑ **Data serves as the fuel** that powers these intelligent systems, enabling them to learn patterns, make predictions, and draw insights.



Explain the Importance of Data in AI Solutions

Key Areas why Data is so important:

- ❑ **Model Learning and Training** - AI algorithms identify patterns, relationships, and insights from the data they are fed. (This process is called "training")
- ❑ **Model Performance and Accuracy** - The quality and quantity of training data directly impact the AI's performance (Accurate and relevant data is essential for valid results)
- ❑ **Objectives and Features** - AI lacks inherent innovation. It relies on the data to understand objectives and how to achieve them. (Patterns and historical data)
- ❑ **Evaluation and Validation** - Accurate and relevant data is essential for valid results
- ❑ **Continuous Improvement** - AI systems are designed to continuously learn and improve over time as they are exposed to new data. (Adapt and Maintain)



Explain the Importance of Data in AI Solutions

In Summary

- ❑ Data provides AI systems with the knowledge they need to function intelligently.
- ❑ Without sufficient, high-quality, and representative data, AI cannot learn effectively, make accurate predictions, or provide valuable insights. (AI algorithms learn from data)
- ❑ Therefore, data management, quality assurance, and ethical considerations around data are fundamental to the successful development and deployment of AI systems.
- ❑ Accurate and relevant data is essential for valid results. If the data is flawed, the AI's output will likely be flawed as well – a concept known as "garbage in, garbage out."





Data Sources and API's

Data Sources and Interfaces

Lesson Key Objectives

Identify types of datasets we use for AI.

1

Identify websites we can use for data for AI.

2

What are APIs?

3



Data Sources and API's

Data sources provide the raw material for training and evaluating AI/ML models. At the same time, APIs (Application Programming Interfaces) offer programmatic ways to access and utilize data and pre-trained AI/ML capabilities.

Data Sources for AI/ML are available for AI/ML systems training, catering to different tasks and domains.

These can be broadly categorized as follows

- Open Data Portals (Data.gov, data.world, Kaggle, OpenML, HuggingFace, etc)
- Academic Datasets (Papers with Code)
- Cloud-based Data Marketplaces (AWS, GCP, Azure)
- Domain-Based Datasets (Physio.net)
- Synthetic Data
- Website Scraping



Data Sources and API's

APIs are essential for integrating AI/ML functionalities into applications and workflows. They allow developers to leverage pre-trained models and access data programmatically. Key types of APIs in the AI/ML landscape include:

Cloud-based AI/ML Platform APIs

- Google Cloud AI APIs (Vertex AI):** Offers APIs for training custom models, using pre-trained models for vision, natural language, speech, and more (including Gemini models).
- Amazon AI (SageMaker):** Provides APIs for building, training, and deploying machine learning models, as well as pre-trained AI services.
- Microsoft Azure AI Services:** Offers APIs for various AI functionalities like computer vision, natural language processing, speech, and decision-making.



Data Sources and API's

Key types of APIs in the AI/ML landscape include: (Continued)

- ❑ **APIs for Data Access:** Many platforms and data providers offer APIs to access their datasets programmatically. This allows for automated data retrieval and integration into AI/ML pipelines. Examples include APIs for accessing financial, social media, and weather data.
- ❑ **Open-Source AI/ML Libraries with API-like Interfaces:** While not strictly web APIs, libraries like scikit-learn, TensorFlow, and PyTorch provide Python interfaces that function similarly, allowing developers to build and train their own models.





Presenting a Value-Driven Proposition and Roadmap

Whiteboard

Lesson Key Objectives

What is Value and a Value Roadmap?

1

What are common AI value discussion points?

2

Identify how you can present value via whiteboards and other tools

3



Presenting a Value-Driven Proposition and Roadmap

AI Value Proposition and Roadmap

- ❑ **Value** refers to the tangible and intangible benefits a project delivers beyond its cost, measured by the ratio of benefits to resource usage. (Value is the degree to which a project satisfies stakeholder needs and contributes to the overall success of the organization)
- ❑ A **value roadmap** is a strategic document that plots the course of a product or service, highlighting the specific values it delivers over time.
- ❑ AI initiatives can **deliver a range of benefits, from tangible to intangible**, including short-term and long-term gains, as well as strategic and tactical impacts, which influence the ROI model.
- ❑ As a Solutions Architect, we should **thoroughly capture the value and impact of AI initiatives** for our customers.
- ❑ Evaluate across **three distinct ROI categories** to capture their value and impact fully.



Presenting a Value-Driven Proposition and Roadmap

Measurable ROI	This involves direct, quantifiable impacts of AI, such as cost savings and revenue increases.
Strategic ROI	This focuses on AI's role in achieving long-term organizational goals (3-to-5-year period), such as digital transformation initiatives to achieve a competitive advantage.
Capability ROI	This looks at how AI projects improve an organization's overall AI maturity, through skills development, specialized job roles, and cultural readiness.



Presenting a Value-Driven Proposition and Roadmap

Three types of ROI

- ❑ **Measurable ROI**—The AI system reduces inventory carrying costs and decreases lost sales due to out-of-stock items, leading to cost savings and increased revenue. Furthermore, the system's ability to adjust inventory levels in response to changing market conditions improves customer satisfaction, as popular items are consistently in stock.
- ❑ **Strategic ROI**—By automating inventory management, the retail chain supports its strategic goal of operational efficiency and superior customer service. The AI system's capabilities allow the organization to adapt quickly to consumer trends and seasonal fluctuations, strengthening its market position.
- ❑ **Capability ROI**—The AI system enhances the skills of the workforce, as employees learn to interact with and manage advanced AI tools. This improves the organization's overall technological capability, fostering an innovation-driven culture.



Presenting a Value-Driven Proposition and Roadmap

Value Driven Roadmap (AI)

- To effectively present a value-driven roadmap, **focus on demonstrating how the roadmap aligns with company goals**, addresses stakeholder needs, and delivers quantifiable benefits.
- Use clear visuals and metrics, prioritize communication with key stakeholders, and emphasize the roadmap's adaptability to changing market conditions.
- Visualize, Quantify, and Summarize**



Putting it all together

Whiteboard Discussion





Google Cloud Value Proposition

Demonstration

Lesson Key Objectives

What are AI/ML services on GCP?

1

Why is Vertex AI so important?

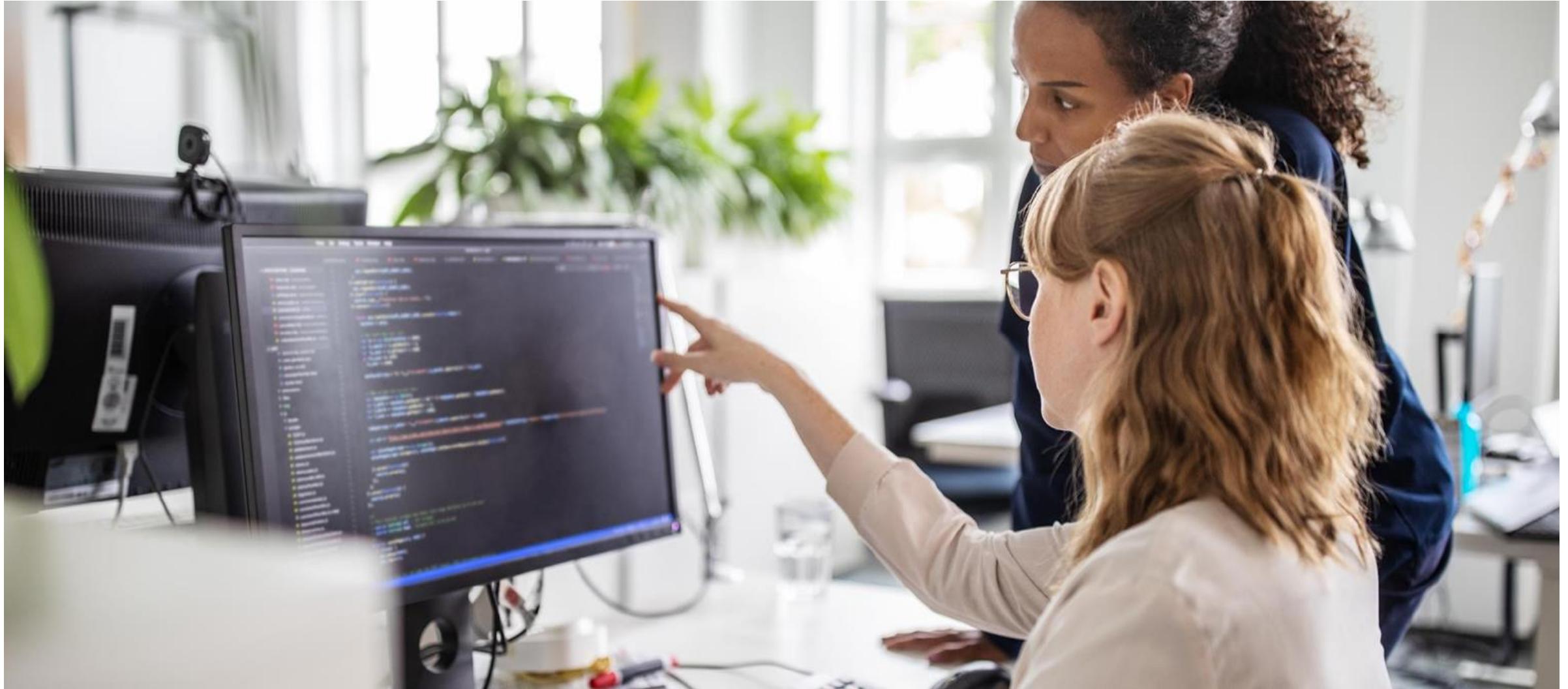
2

Identify what potential value points Google Cloud AI services can bring to the table

3



Demonstration





AI Powered Value Proposition Canvas Generators

Demonstration

Lesson Key Objectives

What is a AI Powered Value Proposition Tool

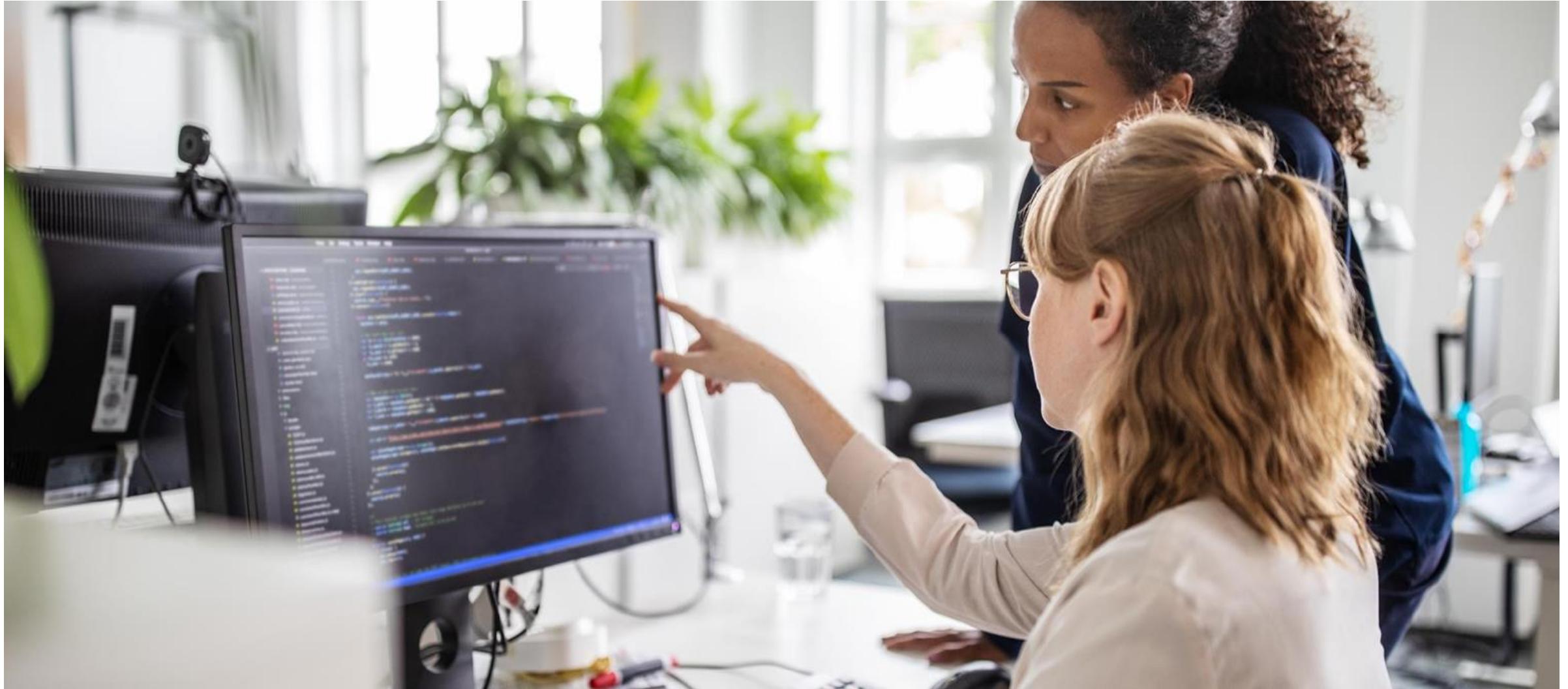
1

Why use these tools?

2



Demonstration





AI/ML Project Walkthrough

Effective AI whiteboarding for SA

Lesson Key Objectives

Walk thru a whiteboard example of an AI Project

1

Identify key points for whiteboarding AI projects

2



Putting it all together

Whiteboard Discussion



AI/ML Landscape and Use Cases

Section 1.3



Section 1.3 Lesson Overview

Identify key players in the AI/ML market

Identify key Cloud Computing Platforms for AI Services

Trends and advancements in AI/ML.

AI/ML Growth Year over Year

Whiteboard - AI Resume Filtering

Use Case - AI in Logistics

Use Case - AI in Finance

Module Review Questions

Module Review Summary





Key Players in the AI Market

Key Companies and platforms

Lesson Key Objectives

What are the Key Players in AI?

1

What are the Key AI Company Types?

2



Key Players in the AI/ML Market

Identify and briefly describe major companies and organizations involved in AI/ML:

- ❑ **Tech Giants:** Google (Google AI, DeepMind), Microsoft, Amazon (AWS), IBM, Apple, MetaCloud, NVIDIA
- ❑ **Providers:** Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP)Research
- ❑ **Institutions:** MIT, Stanford, Carnegie Mellon University
- ❑ **Model Startups:** OpenAI, Anthropic, Cohere, xAI (Grok)
- ❑ **Specialized AI Startups:** Reflection.Ai, Harvey, Skild.AI, Turing, Shield AI
- ❑ **Data AI Infrastructure:** Databricks, Celestial AI, Nexthop AI, Palantir Technologies





Key Players in the Cloud Market

Key AI Cloud Services

Lesson Key Objectives

What are the Key Cloud Players in AI Services?

1

What are the primary services of each major cloud provider?

2



Key Players in the Cloud Market

Primary Cloud Player AI/ML Services:

Primary Public Cloud Providers:

- Amazon Web Services (AWS)
- Microsoft Azure
- Google Cloud Platform (GCP)



Key Cloud Players and their AI Services

Compare Cloud AI Services

AI Category	AWS	MS Azure	GCP
Generative Ai	Amazon Bedrock, Amazon Q, Amazon SageMaker AI, Amazon Nova	Azure OpenAI Service, Azure AI Foundry, Phi open models	Vertex AI Platform (Gemini), Vertex AI Studio, Gemini Models
Machine Learning	Amazon SageMaker, AWS Deep Learning AMIs/Containers	Azure Machine Learning	Vertex AI Platform, AutoML
Computer Vision	Amazon Rekognition	Azure AI Vision, Azure AI Document Intelligence, Custom Vision, Face	Vision AI, Document AI
Natural Language Processing (NLP)	Amazon Transcribe, Amazon Polly, Amazon Translate, Amazon Comprehend, Amazon Textract	Azure AI Language, Azure AI Translator, Azure AI Speech, Azure AI Content Safety, Azure AI Search	Natural Language AI, Speech-to-Text, Text-to-Speech, Translation AI, Document AI
Conversational AI	Amazon Lex	Azure AI Bot Service, Microsoft Copilot Studio	Conversational Agents (Dialogflow), Vertex AI Agent Builder, Customer Engagement Suite with Google AI Export to Sheets





Trends and Advancements in AI/ML

What can we expect in the future?

Lesson Key Objectives

What are the current trends with AI?

1

What are the primary advancements to learn?

2



Trends and Advancements in AI/ML

There are so many trends with AI/ML:

- ❑ Agentic AI
- ❑ AI Reasoning
- ❑ Custom Silicon
- ❑ Custom Migrations
- ❑ Systems to Measure AI Efficacy
- ❑ Focus on Enterprise needs
- ❑ Explainable AI
- ❑ Digital Data Forgetting (Machine Unlearning)



Trends and Advancements in AI/ML

There are so many trends with AI/ML:

- ❑ Interoperability Among Neural Networks
- ❑ Automated Machine Learning (AutoML)
- ❑ Convergence of IoT and Machine Learning (AIoT)
- ❑ Rise of Natural Language Processing (NLP) for Customer Support
- ❑ Emergence of Custom Generative AI Models
- ❑ Increased Focus on AI Ethics and Security Risks
- ❑ Shadow AI and Governance



Trends and Advancements in AI/ML

There are so many advancements with AI/ML:

- ❑ Brain-Inspired AI
- ❑ Robotic Learning from Observations
- ❑ Explainable AI for Robotics
- ❑ AI in the Medical Sector (Diagnosis)
- ❑ AI in Drug Discovery and Biology
- ❑ AI for Code Generation and Optimization
- ❑ AI for Scientific Discovery





AI/ML Growth YoY

Growth of AI/ML Markets

Lesson Key Objectives

What is the CAGR for AI/ML?

1

What is the value of the AI/ML markets today and then 2030?

2



AI/ML Growth YoY

Compound Annual Growth Rate (CAGR)

- ❑ The global artificial intelligence market was valued at approximately USD 638.23 billion in 2024.
- ❑ Estimates for 2025 project the market size to reach around USD 757.58 billion, indicating a significant year-over-year increase.
- ❑ The compound annual growth rate (CAGR) for the AI market is projected to be substantial over the coming years.
- ❑ Different sources provide slightly varying figures, but consistently point to strong growth: 19.20% CAGR is expected between 2025 and 2034.
- ❑ Another report estimates a 35.9% CAGR from 2025 to 2030. One source indicates a 26% year-over-year growth expected in 2025.
- ❑ The AI market is also projected to grow at a CAGR of 37.3% between 2022 and 2030.



AI/ML Growth YoY

Compound Annual Growth Rate (CAGR)

- ❑ The global machine learning market was valued at USD 35.32 billion in 2024.
- ❑ It is expected to grow to USD 47.99 billion in 2025, showcasing a strong year-over-year growth.
- ❑ The machine learning market is predicted to exhibit a CAGR of 30.5% from 2025 to 2032.
- ❑ Another report suggests an even higher CAGR of 33.6% for the Machine Learning Artificial Intelligence market from 2024 to 2033.
- ❑ One source indicated that the machine learning market grew by 55% in 2024 compared to the previous year.



AI/ML Growth YoY

Examples

- ❑ The AI software market is expected to grow to \$391.43 billion by 2030, with a CAGR of 30%, according to ABI Research.
- ❑ Generative AI frameworks are expected to be the fastest-growing, with a CAGR of 49.7%, according to ABI Research.
- ❑ India's AI market is projected to reach around \$17 billion by 2027, according to Fortune Business Insights.





AI Resume Filtering

Use Case Walkthrough

Lesson Key Objectives

Walk thru a whiteboard example of an AI based Resume Filtering

1



Putting it all together

Whiteboard Discussion





AWS MLFlow Deployment

Use Case Walkthrough

Lesson Key Objectives

Walk thru a whiteboard example deploying MLFlow on AWS

1



Putting it all together

Whiteboard Discussion





AI/ML Use Cases

Various Industry Use Cases

Lesson Key Objectives

What is the CAGR for AI/ML?

1

What is the value of the AI/ML markets today and then 2030?

2



AI/ML Use Cases

Various Use Cases in different industries.

- ❑ **Enhanced Customer Experience through Personalization:** AI/ML algorithms analyze vast customer data, including purchase history, browsing behavior, and preferences, to provide highly personalized recommendations, offers, and content. This leads to increased customer engagement, satisfaction, and loyalty. For example, e-commerce platforms use AI to suggest products a customer might like based on past purchases.
- ❑ **Automated Customer Service with Chatbots and Virtual Assistants:** AI-powered chatbots and virtual assistants can handle many customer inquiries 24/7, providing instant responses to common questions, resolving simple issues, and escalating complex requests to human agents. This improves response times, reduces operational costs, and enhances customer support efficiency. Many companies now use chatbots on their websites to answer frequently asked questions.



AI/ML Use Cases

Various Use Cases in different industries.

- ❑ **Predictive Maintenance for Asset Management:** ML algorithms analyze sensor data from equipment and machinery to predict potential failures and schedule maintenance proactively. This minimizes downtime, reduces repair costs, and extends the lifespan of assets. For instance, in manufacturing, AI can predict when a machine part will likely fail, allowing for timely replacement.
- ❑ **Fraud Detection and Prevention:** AI/ML can analyze transaction patterns and user behavior in real time to identify anomalies and potential fraudulent activities in finance, insurance, and e-commerce. This helps reduce financial losses and protect customers. Banks commonly use AI to detect unusual credit card transactions.



AI/ML Use Cases

Various Use Cases in different industries.

- ❑ **Supply Chain Optimization:** AI/ML algorithms can analyze demand forecasts, inventory levels, logistics data, and potential disruptions to optimize supply chain operations. This includes predicting demand, managing inventory efficiently, optimizing routes, and reducing costs. Retailers use AI to predict which products will be in high demand and ensure adequate stock.
- ❑ **Intelligent Document Processing:** AI, particularly Natural Language Processing (NLP) and Computer Vision, can automate the extraction, classification, and analysis of data from various types of documents, such as invoices, contracts, and reports. This streamlines workflows, reduces manual effort, and improves accuracy. For example, AI can automatically process and extract key information from scanned invoices.



AI/ML Use Cases

Various Use Cases in different industries.

- ❑ **Personalized Marketing and Sales:** AI/ML enables businesses to segment their target audience more effectively and deliver highly personalized marketing messages and sales pitches based on individual customer profiles and behaviors. This improves campaign effectiveness and increases conversion rates. Marketing teams use AI to tailor email campaigns to specific customer segments.
- ❑ **Risk Management and Compliance:** AI/ML can analyze large datasets to identify potential risks, assess creditworthiness, and ensure compliance with regulations in industries like finance and healthcare. This helps in making more informed decisions and avoiding penalties. Financial institutions use AI to assess the risk associated with loan applications.





AI/ML Use Case - FedEx

FedEx Orion

Logistics Use Case - FedEx

FedEx provides a compelling use case for how a large logistics company can significantly improve efficiency by implementing AI in route optimization.

The Challenge:

Before AI-powered solutions, FedEx relied on more traditional methods for planning delivery routes. These methods often couldn't dynamically adjust to real-time factors like traffic congestion, unexpected road closures, or last-minute delivery requests.

This could lead to:

- Increased mileage driven.
- Higher fuel consumption and related costs.
- Delays in deliveries, impacting customer satisfaction.
- Inefficient allocation of driver time.



Logistics Use Case - FedEx

The AI Solution: FedEx Surround and ORION (On-Road Integrated Optimization and Navigation).
FedEx has implemented sophisticated AI-driven systems like FedEx Surround and ORION to tackle these challenges:

Real-time Data Analysis: These systems analyze a vast array of real-time data, including:

- GPS tracking of vehicles.
- Live traffic conditions.
- Weather forecasts.
- Package destinations and time-sensitive deliveries.
- Historical delivery patterns.



Logistics Use Case - FedEx

The AI Solution: The implementation of AI in route optimization has led to significant efficiency improvements for FedEx:

Reduced Mileage and Fuel Consumption: By calculating and dynamically adjusting to the most efficient routes, FedEx has drastically reduced the total miles driven by its fleet, leading to substantial fuel savings and a lower carbon footprint.

Faster Delivery Times and Improved Customer Satisfaction: Optimized routes enable drivers to complete their deliveries more quickly and efficiently, leading to improved on-time delivery rates and higher customer satisfaction.

Better Resource Allocation: AI helps FedEx optimize the utilization of its drivers and vehicles, ensuring that resources are deployed effectively to meet delivery demands.

Lower Operational Costs: The combination of reduced fuel consumption, optimized resource allocation, and potentially lower overtime costs for drivers contributes to significant overall operational cost reductions



Topic Discussion





AI/ML Use Case - Finance

Chase AI Fraud Detection

Lesson Key Objectives

How does Chase use AI

1

What are the efficiencies and benefits that Chase realizes?

2



Logistics Use Case – JPMorgan Chase

JPMorgan Chase Scenario: JPMorgan Chase, like other large financial institutions, processes an enormous volume of transactions daily, making it a prime target for fraudulent activities ranging from credit card fraud and wire transfer scams to account takeovers.

Traditional rule-based fraud detection systems often struggle with the sophistication and speed of modern fraud, leading to:

- ❑ **High False Positive Rates:** Legitimate transactions can be flagged as suspicious, causing inconvenience for customers and increasing operational overhead for the bank in investigating these false alarms.
- ❑ **Slow Detection of Novel Fraud Schemes:** Rule-based systems are often reactive, requiring manual updates based on known fraud patterns. They struggle to identify new and evolving fraud techniques.
- ❑ **Significant Financial Losses:** Despite existing measures, substantial financial losses occur due to undetected fraudulent activities.
- ❑ **Increased Operational Costs:** A large team of analysts must manually review alerts and investigate suspicious transactions.



Logistics Use Case – JPMorgan Chase

Solution: JPMorgan Chase implements an advanced AI-powered fraud detection system that leverages machine learning and deep learning algorithms to analyze vast amounts of transaction data in real-time.

This system goes beyond traditional rule-based approaches by:

- Anomaly Detection:** AI algorithms learn individual customers' and accounts' normal behavior patterns. By continuously monitoring transactions, the system can identify deviations from these established patterns that may indicate fraudulent activity, even if they don't match known fraud rules
- Behavioral Biometrics:** The AI analyzes patterns in how customers interact with their banking platforms, such as typing speed, mouse movements, and navigation patterns. Unusual deviations in these behavioral biometrics can signal that an account has been compromised.



Logistics Use Case – JPMorgan Chase

This system goes beyond traditional rule-based approaches by: (Continued)

- ❑ **Network Analysis:** The AI can analyze the relationships between different accounts and transactions, identifying suspicious networks or clusters of activity that might be indicative of organized fraud rings
- ❑ **Natural Language Processing (NLP) for Contextual Analysis:** For transactions involving free-form text, such as wire transfer instructions or customer service interactions, NLP can identify keywords or phrases often associated with fraudulent activities.
- ❑ **Predictive Modeling:** Machine learning models are trained on historical fraud data to predict the likelihood of future fraudulent transactions based on various features and patterns. This allows the bank to proactively identify and potentially block high-risk transactions.



Logistics Use Case – JPMorgan Chase

The AI Solution: The implementation of AI in fraud detection has led to significant benefits and improvements for JPMorgan Chase:

- Reduced False Positives
- Faster Detection
- Increased Detection Rates
- Optimized Analyst Productivity
- Scalability
- Cost Savings



Topic Discussion



Module Review Summary

Short Summary of what we covered in this module



Module Review Summary

- ❑ **Artificial Intelligence(AI)** is commonly demonstrated by machines, as opposed to natural intelligence displayed by animals, including humans.
- ❑ The **goal** of using AI is to create systems that can perform tasks that typically require human intelligence.
- ❑ **Machine Learning (ML)** is a subfield of Artificial Intelligence (AI) that focuses on enabling computers to learn from data without being explicitly programmed.
- ❑ **Three main types** of ML Learning, which are Supervised, Unsupervised, and Reinforcement
- ❑ **Deep Learning** is a subfield of Machine Learning that utilizes artificial neural networks with multiple layers (hence "deep") to extract complex patterns from data.
- ❑ **Generative AI** is a type of artificial intelligence that can produce new content, such as text, images, audio, and video, by learning from vast amounts of existing data.
- ❑ **Predictive AI** is a branch of artificial intelligence focused on forecasting future outcomes based on historical and current data.
- ❑ **Agentic AI** refers to artificial intelligence systems that can operate autonomously to achieve specific goals without constant human oversight.



Module Review Summary

- Explainable AI (XAI)** focuses on making AI decisions transparent and understandable to humans.
- Conversational AI** enables human-like interactions through natural language (chatbots, virtual assistants).
- Reasoning and Planning AI** focuses on logical inference and decision-making in complex scenarios
- Natural Language Processing (NLP)** is a branch of AI that enables computers to understand, interpret, and generate human language.
- Open-source libraries** are used for AI services, which are collections of pre-written code and tools available for free use and modification.
- Algorithms** are computer systems/code that follow rules or instructions to solve problems.
- AI algorithms** are the foundation of how AI systems learn and make decisions.
- Machine learning algorithms** enable computers to learn from data without explicit programming
- Important **Key Benefits** of using AI in your Business range from efficiency, better decision making, improved customer service, etc
- AI is implemented across various business processes, **transforming companies' operations** and creating value.



Module Review Summary

- ❑ The four pillars of AI projects are Vision, Value Realization, Risk Management, and Adoption Plans
- ❑ The quality, quantity, and characteristics of the data directly determine these intelligent systems' capabilities, accuracy, and reliability. (**Data serves as the fuel**)
- ❑ The major cloud providers all have their portfolio of different AI/ML services around various types of AI services such as Machine Learning, Computer Vision, Natural Language Processing (NLP), and Conversational AI
- ❑ The AI market is projected to grow at a **CAGR of 37.3% between 2022 and 2030.**
- ❑ The global artificial intelligence market was valued at approximately **USD 638.23 billion in 2024.**
- ❑ There are numerous **use cases** for AI applications, such as logistics, human resources, e-commerce, and manufacturing.



Review Questions

Let's Test our knowledge



Module Review Questions

1. What would be the main goal for a company to want to use AI? (Select One)

- A. Perform tasks that do not require human intervention.
- B. Perform tasks that commonly require human intelligence.
- C. Perform cost-effective tasks.
- D. Perform tasks that are knowledge-based tasks.



Module Review Questions

1. What would be the main goal for a company to want to use AI? (Select One)

- A. Perform tasks that do not require human intervention.
- B. **Perform tasks that commonly require human intelligence.**
- C. Perform cost-effective tasks.
- D. Perform tasks that are knowledge-based tasks.

Explanation: The main goal of using AI is to create systems that can perform tasks that typically require human intelligence. AI can perform tasks that are either knowledge based or manual and these tasks may or not always be cost effective.



Module Review Questions

2. Which type of AI focuses on making AI decisions transparent and understandable to humans.

(Select One)

- A. Agentic AI
- B. Generative AI
- C. Explainable AI
- D. Predictive AI



Module Review Questions

2. Which type of AI focuses on making AI decisions transparent and understandable to humans?

(Select One)

- A. Agentic AI
- B. Generative AI
- C. **Explainable AI**
- D. Predictive AI

Explanation: Explainable AI focuses on making AI decisions transparent and understandable to humans. Explainable AI aims to make the decision-making process of AI systems transparent and interpretable, addressing the "black box" nature of many AI models.



Module Review Questions

3. Which of the following is a subfield of Machine Learning that utilizes artificial neural networks with multiple layers to extract complex patterns from data. (Select One)

- A. Neural Networks
- B. Deep Learning
- C. Algorithms
- D. Natural Language Processing



Module Review Questions

3. Which of the following is a subfield of Machine Learning that utilizes artificial neural networks with multiple layers to extract complex patterns from data. (Select One)

- A. Neural Networks
- B. **Deep Learning**
- C. Algorithms
- D. Natural Language Processing

Explanation: Deep Learning is a subfield of Machine Learning that utilizes artificial neural networks with multiple layers (hence "deep") to extract complex patterns from data.

The structure and function of the human brain inspired Deep Learning.



Module Review Questions

4. The four pillars of an effective AI strategy provide a comprehensive framework for organizations looking to leverage artificial intelligence to achieve their business goals. Which Pillar would be the first pillar to start with on a new client engagement? (Select One)

- A. Risk Management
- B. Value
- C. Vision
- D. Adoption Planning



Module Review Questions

4. The four pillars of an effective AI strategy provide a comprehensive framework for organizations looking to leverage artificial intelligence to achieve their business goals. Which Pillar according to Gartner would be the first pillar to start with on a new client engagement? (Select One)

- A. Risk Management
- B. Value
- C. Vision
- D. Adoption Planning

Explanation : The four pillars of an effective AI strategy provide a comprehensive framework for organizations looking to leverage artificial intelligence to achieve their business goals. Vision is when we “Establish a clear and compelling vision” for how AI will be integrated into the organization and aligned with its overarching business strategy.

According to Gartner, these pillars are in this order: Vision > Value > Risk Management > Adoption



Module Review Questions

5. There are three distinct types(characteristic) of Return on Investment (ROI). Which answer is NOT correct ROI Type? (Select One)

- A. Measurable
- B. Strategic
- C. Targeted
- D. Capability



Module Review Questions

5. There are three distinct types(characteristics) of Return on Investment (ROI). Which answer is NOT correct ROI Type? (Select One)

- A. Measurable
- B. Strategic
- C. Targeted
- D. Capability

Explanation: ROI is a **measurable** metric that can be easily compared with returns from other investments, allowing for a variety of types of investments against one another. It is **strategic** in guiding businesses through financial decision-making and is a cornerstone metric in financial analysis and decision-making. It is also a **capability** that organizations can consistently track and optimize to demonstrate better capital allocation efficiency.



Course Components

01

Domain 1 – AI/ML Fundamentals (35%)

02

Domain 2 – Solution Development and Proposals (30%)

03

Domain 3 – Customer Relationship Management(35%)





Domain 2 – Solutions Development and Proposal

Module 2 – CCASA Exam (Short version of CCPSA)

Fundamentals and Customer Engagement



Module 2 Sections

- 01 Section 2.1 – What is Sales Engineering
- 02 Section 2.2 – Customer Procurement Requirements
- 03 Section 2.3 – Handling Sales Engineering Activities

What is Sales Engineering

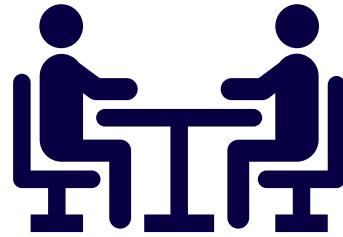
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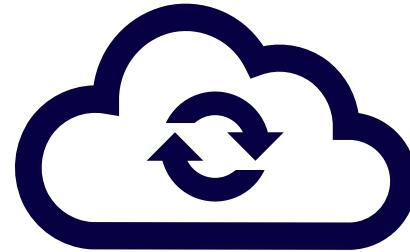
Section 2.1 Lesson Overview



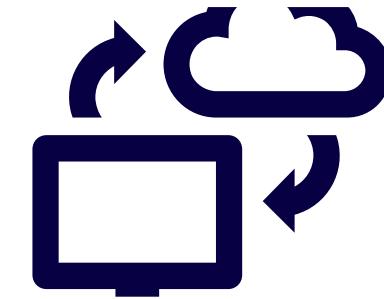
What is Sales
Engineering



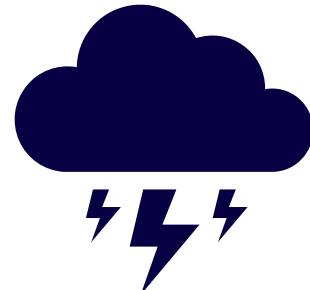
Discussion - Presales vs
Solutions Engineering



Cloud Fundamentals



Cloud Infrastructure



Cloud APIs



Cloud Considerations



What is Sales Engineering?

Common expectations for roles

Lesson Key Objectives

What is Sales Engineering?

1

What can a Sales Engineer be expected to work on?

2

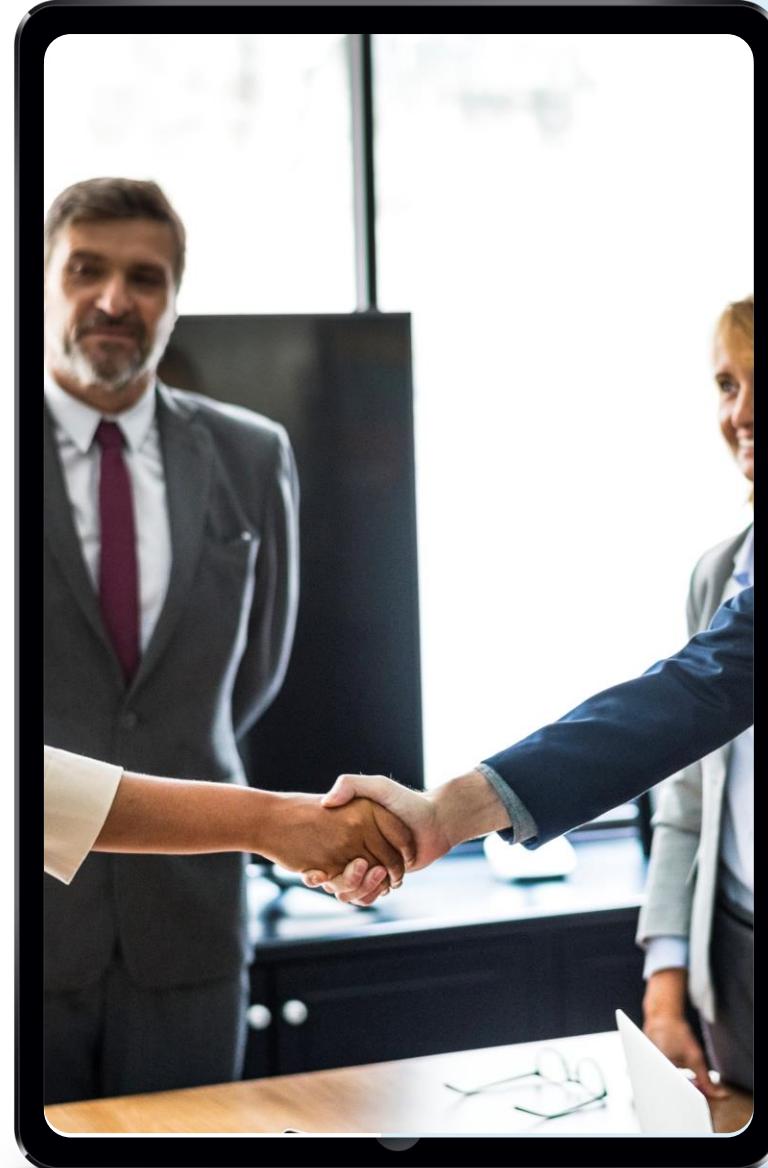


What is Sales Engineering

Sales Engineering is a hybrid practice that is focused on selling complex technical solutions to a customer bases.

Common practice areas:

- Hardware and Software
- Solutions
- Cloud
- Managed Services



What is Sales Engineering

Sales Engineering vs Sales

- ❑ Sales engineers are different from traditional salespeople because they sell more technical products.
- ❑ Technical expertise to explain these products in detail to customers.
- ❑ Work with clients on a more consultative basis, helping them find the best solution for their needs.



What is Sales Engineering

Common Responsibilities Day to Day

- Customer Engagement
- Prepare Proposals and Quotes
- Working with technical leads in customer organization.
- Working with SMEs at vendors
- Defining technical solutions and architecture.
- Interface between customer and support
- Be that Trusted Advisor





Presales vs Solutions Engineering

Discussion



Lesson Key Objectives

Pre sales Engineering compared to Solutions Engineering roles

1



Topic Discussion





Cloud Fundamentals

Understanding the concepts of Cloud Computing



Lesson Key Objectives

What is the Cloud?

1

Why do companies choose the cloud?

2

What are Cloud Service Models and Cloud Deployment Models?

3

Comparing Cloud to Virtualization and On Premises

4

Building Blocks of Cloud

5



Virtualization Fundamentals

What is Cloud Computing

Cloud Computing is a business model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.

- ❑ Sharing of resources
- ❑ Virtualization is critical to cloud computing
- ❑ AWS, Azure, GCP, Salesforce and many more services



Cloud Fundamentals

Compare Cloud to a Utility Service

Think of cloud computing like a utility provider.

- ✓ Instead of power or water you are effectively using someone else's compute, storage, etc.
- ✓ You do not need to buy or build the infrastructure
- ✓ No ownership, like lease/rent
- ✓ Turn on or off as needed



Cloud Computing Defined

Defining Cloud Computing

SP 800-145 Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model is composed of five essential characteristics, three service models, and four deployment models.

NIST – SP-800-145

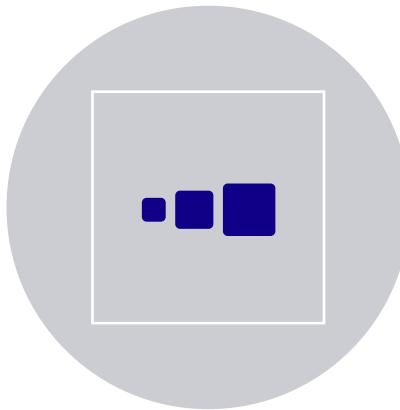
<https://csrc.nist.gov/publications/detail/sp/800-145/final>



Cloud Service Models



IAAS



PAAS



SAAS

NIST Defines Three Service Models - A cloud service model is defined according to who's responsible for what responsibilities.



Cloud Service Models



Infrastructure as a Service (IaaS) contains the basic building blocks for cloud IT and typically provides access to networking features, computers and data storage space.



IaaS provides the highest level of flexibility and management control over the infrastructure (Example – AWS EC2)



Cloud Service Models



Platform as a Service (PaaS) removes the need for your organization to manage the underlying infrastructure and allows you to focus on the deployment and mgmt. of your applications.



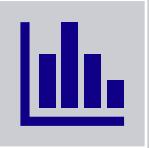
PaaS provides the second highest level of flexibility and management control over the infrastructure. (Example – AWS Elastic Beanstalk)



Cloud Service Models



Software as a Service (SaaS) provides you a complete product that is run and managed by the service provider.



You worry only about using the software and not about infrastructure.



SaaS provides the lowest level of flexibility and management control over the infrastructure. (Example – MS O365)

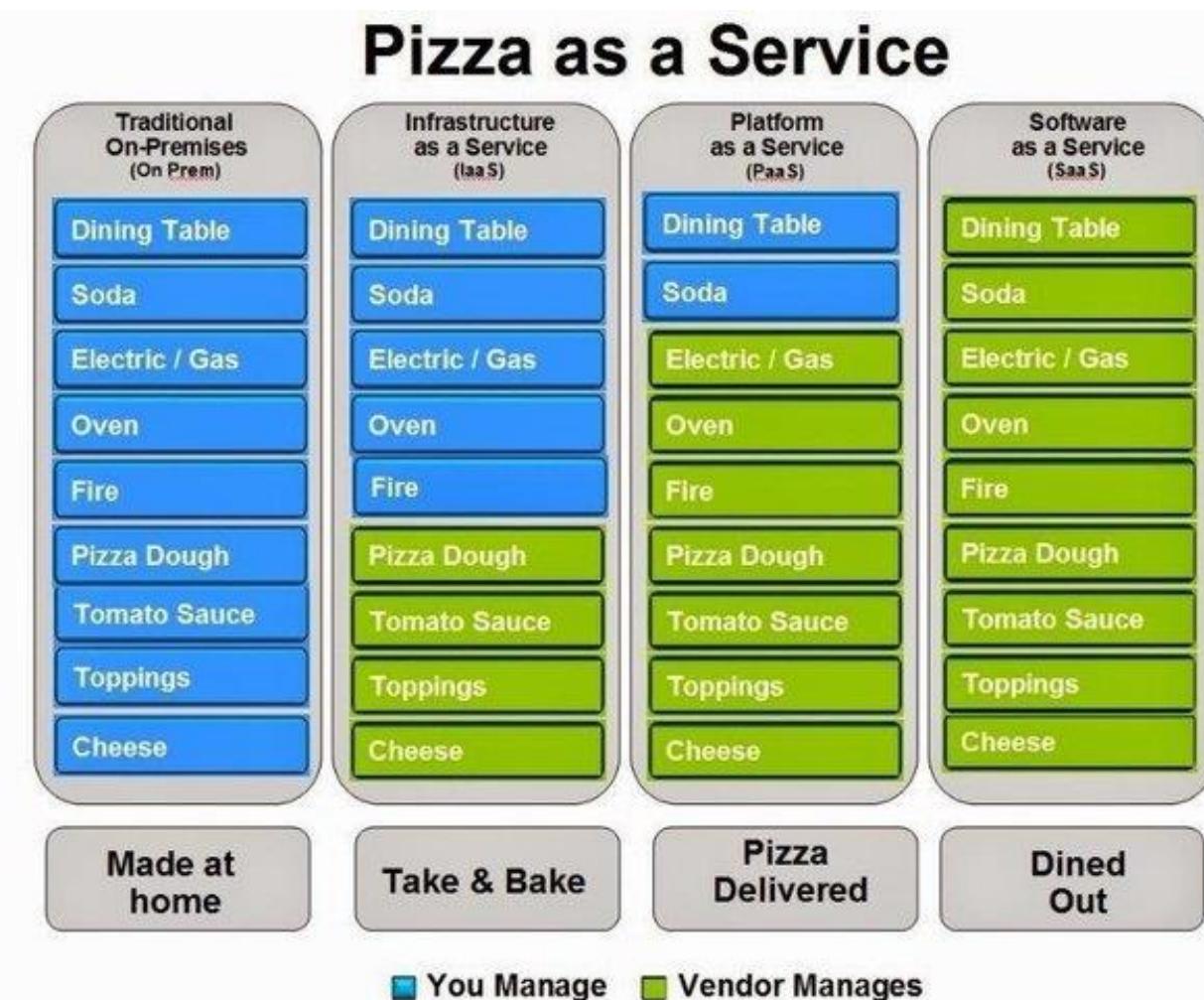


Cloud Deployment Models

Pizza as a Service

- Level of Effort

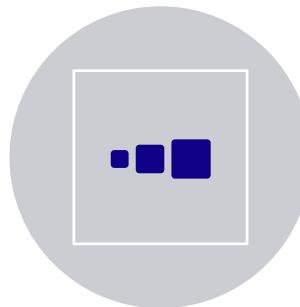
Diagram – Quora



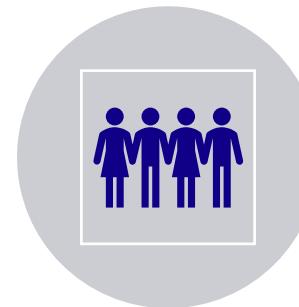
Cloud Deployment Models



PRIVATE CLOUD



HYBRID



COMMUNITY



PUBLIC

NIST Defines Four Deployment Models - A cloud deployment model is defined according to where the infrastructure for the deployment resides and who has control over that infrastructure.



Cloud Deployment Models



On-premises – you run everything in your own DC



Hybrid – Combine two or more of the models.



Community – Shared deployment between organizations.



Public Cloud – you run all your services in a Public Cloud



Key Cloud Computing Characteristics

On Demand Self Service

Broad Network Access

Resource Pooling

Rapid Elasticity

Measured Service



Key Cloud Computing Characteristics

On-demand self-service: Cloud computing services do not require any human administrators, user themselves are able to provision, monitor and manage computing resources as needed.

Broad network access: The computing services are generally provided over standard networks and heterogeneous devices.

Rapid elasticity: The computing services should have IT resources that are able to scale out and in quickly and on as needed basis. Whenever the user require services, it is provided to him, and it is scale out as soon as its requirement gets over.

Resource pooling: The IT resource (e.g., networks, servers, storage, applications, and services) present are shared across multiple applications and occupant in an uncommitted manner. Multiple clients are provided service from a same physical resource.

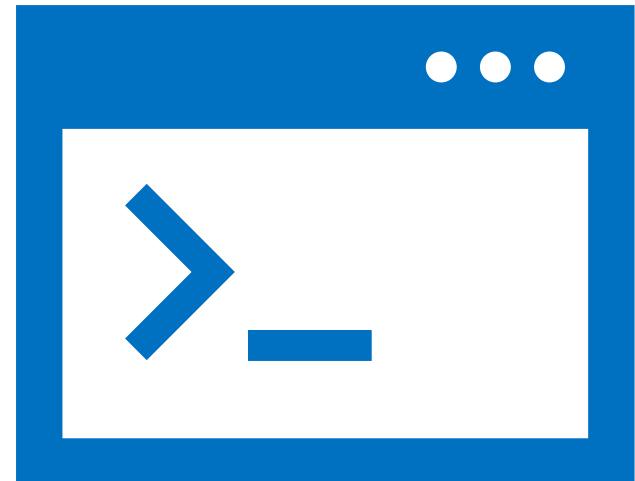
Measured service: The resource utilization is tracked for each application and user; it will provide both the user and the resource provider with an account of what has been used. This is done for various reasons like monitoring billing and effective use of resource.



Virtualization Fundamentals

The difference between Cloud and Virtualization?

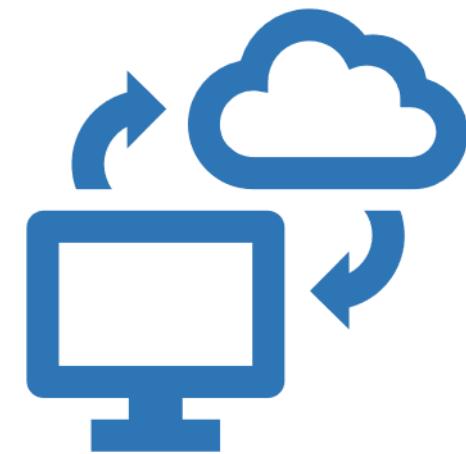
- Cloud provides self-service capability, elasticity, automated management, scalability and pay-as-you-go service all of which are not inherent in virtualization.
- Cloud Computing is a platform of services enabled by virtualization



Virtualization Fundamentals

The difference between Cloud and Virtualization? (Continued)

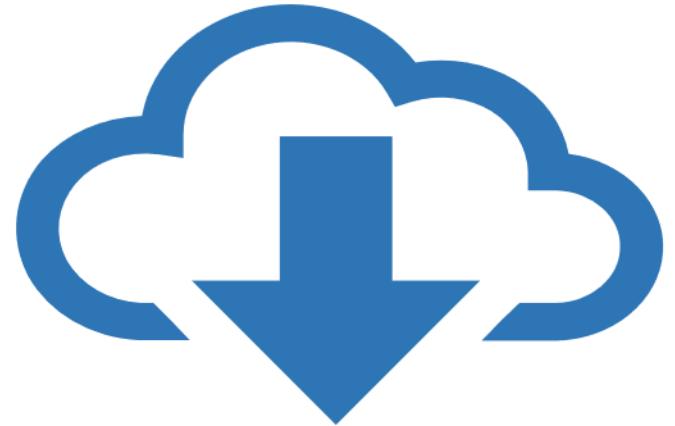
- Without virtualization effectively cloud computing would not be economically viable.
- Virtualization drives and enables the cloud as a business model.



Virtualization Fundamentals

Why use Cloud Computing?

- Efficient Use of Resources
- Strategic value (Faster TTM)
- Lowers CAPEX
- Increases ROI
- Reduced IT Staffing requirements
- Rapid Provisioning



Virtualization Fundamentals

Comparing Cloud Computing to Virtualization

Comparing Cloud to Virtualization

Cloud Computing	Virtualization
Distribution of services	Sandboxing of physical resources
Range of resources	Packaged resources
Highly scalable	Low scalability
Higher cost model	Lower cost model
Hardware specialization	Single hardware can work
Enabled by virtualization	Enables Cloud Computing
Late 1990's (Salesforce)	Mid 1960s (IBM)



Impact of Related Technologies

Comparing Cloud and On Premises

Traditional Computing	Cloud Computing
Capital and Operational Expenses	Operational Expenses
Manually Provisioned	Self Provisioned
Fixed Capacity	Elastic Capacity
Dedicated Hardware	Centralized Hardware
Pay for Capacity	Pay for Use
Managed by Admins	Managed Through APIs
No Disaster Recovery	DR and High Availability
Low Agility	High Agility
Electricity Costs, Cooling Costs etc.	Green Computing



Building Block Technology

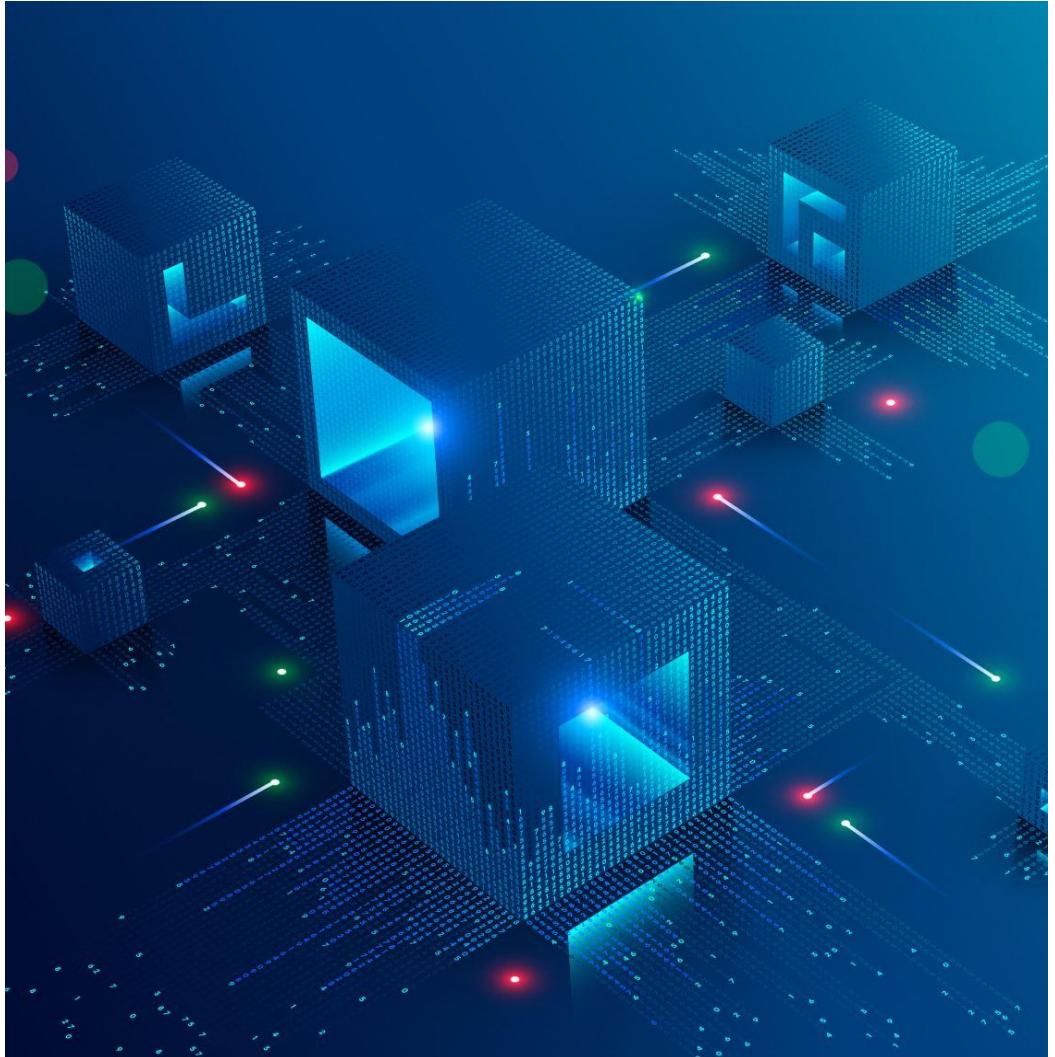
- Servers (Processor and Memory)**
- Storage (Object, File and SAN)**
- Network (Switches and Routers, Appliances)**
- Virtualization (Hypervisor and VMS)**
- Security**
- Applications**



Building Block Technology

Three main building blocks of cloud services to know.

- Infrastructure
- Applications
- Services





Cloud Considerations

What are the evaluation concerns and considerations we should discuss with customers.

Lesson Key Objectives

What are shared considerations of cloud computing?

1

What is Low Ops or No Ops?

2

What is the Shared Security Model?

3



Cloud Shared Considerations

Deploying cloud resources requires a considerable amount of planning.

- ❑ Many concerns such as privacy, security, costing, performance, geography, features, vendor lock and numerous other considerations.
- ❑ Before Deploying Assets
 - ❑ Understand Characteristics, Deployment Models and Service Model



Considerations

Cloud Security	Key Management, IAM, Secrets, Storage, Least Privilege, Auditing and Compliance, Org Policy
Integration	On Premises, OAuth, Federation. Containers
Enterprise Networking	VPC, Hybrid Connectivity, VPC, VPN, DNS, NAT, Cloud Interconnects , Load Balancing, etc

Considerations to be Evaluated



Considerations	
Performance	TPS, Latency, Networking overhead, Stack and Protocol overhead, database requirements, etc
Governance	Compliance Requirements GDPR, SOX, KYC, AML, etc
Cloud Structure	Cloud Structure, Services, Costing Organizations, Projects, VPCs, IAM, etc.

Considerations to be Evaluated



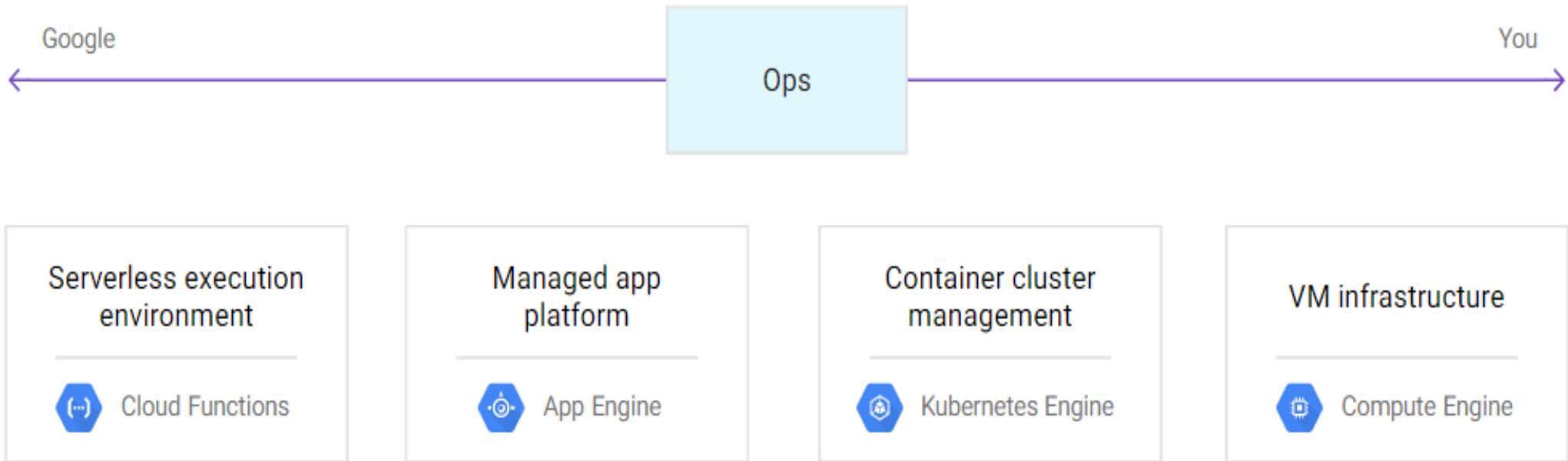
Considerations

Development	Development Stack, Programming Languages, IDEs, APIs.
Economics	Billing, Costing, Compliance Costs, Chargeback, etc ROI/TCO
Cloud Migration	Cloud Structure, VM, Storage, Services Migration Tools in GCP

Considerations to be Evaluated



Low Ops or No Ops?



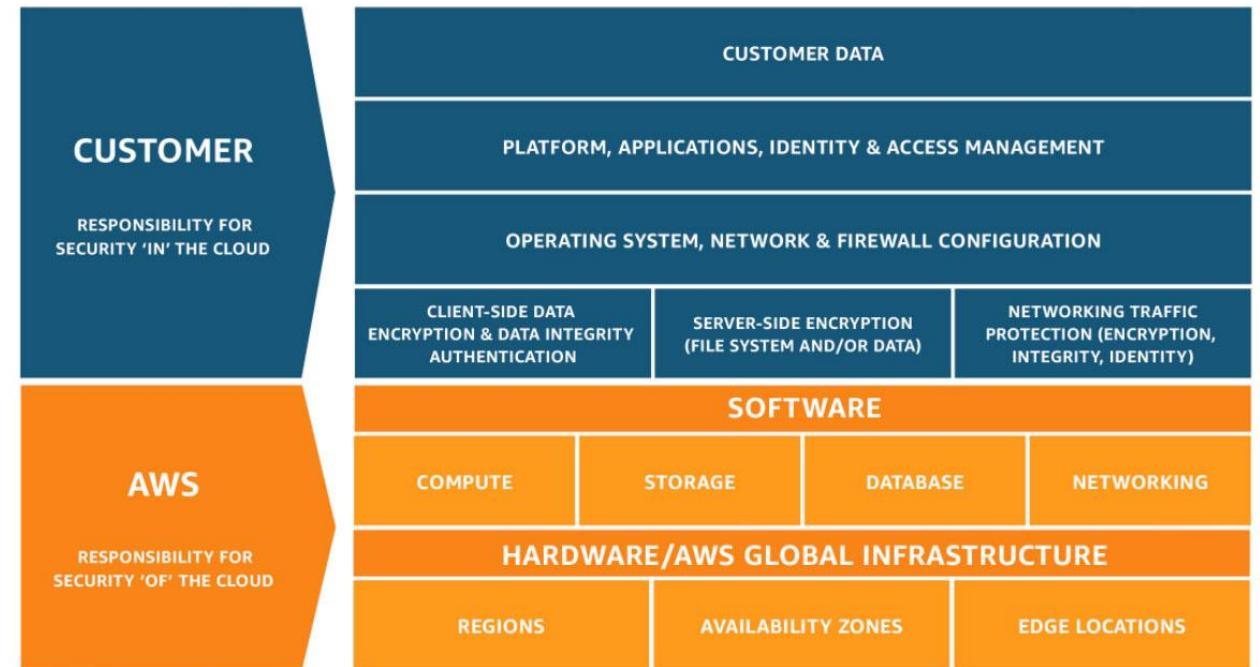
<https://cloud.google.com/docs/overview/cloud-platform-services>



Shared Security Model

Shared Security Model

- AWS has great documentation on this Model
- Customer will need handle security for example.



<https://aws.amazon.com/compliance/shared-responsibility-model/>





Cloud Infrastructure

Placement of Resources



Lesson Key Objectives

Cloud Regions and Zones

1

Why Select one Region over another?

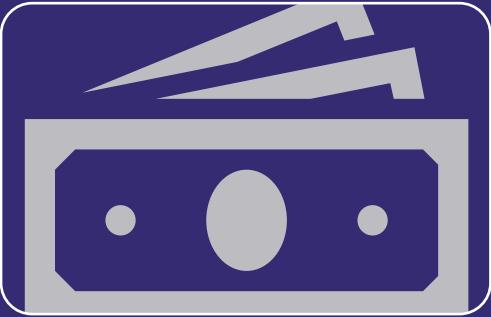
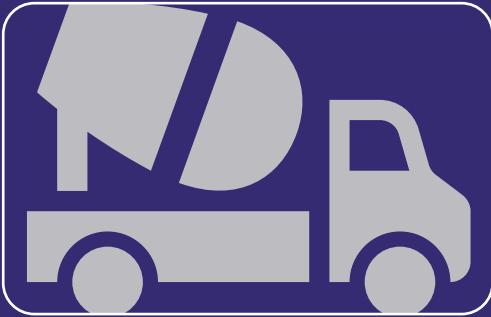
2

AWS Cloud Infrastructure

3



Regions and Zones



Compliance
with data
governance
and legal
requirements

Proximity to
your
customers

Available
services
within a
Region

Pricing

Regions and Zones

Regions and Availability Zones (AZ)

- Region is a physical location around the world where AWS clusters their data centers.
- Availability Zone (AZ) is one or more discrete data centers with redundant power, networking, and connectivity in an AWS Region
- AWS Local Zones place compute, storage, database, and other select AWS services closer to end-users



Regions and Zones

AWS Global Infrastructure

AWS Cloud Platform Global Infrastructure

- Availability Zones
- Regions
- Edges
- Local Zones

https://aws.amazon.com/about-aws/global-infrastructure/regions_az/



Regions and Zones

AWS Global Infrastructure

- An AWS Region is a physical location in the world that **consists of multiple Availability Zones**
- All AWS Regions are **completely isolated** from each other but connected thru multiple low latency links
- 24 Launched Regions



Regions and Zones

AWS Global Infrastructure

- Availability Zone represents **one or more discrete data centers**. Each DC is with redundant power, networking, and connectivity, housed in separate facilities.
- Accomplish HA/FT by using multiple Availability Zones(AZ) and reduce risk to your production applications.
- 77 Availability Zones



Regions and Zones

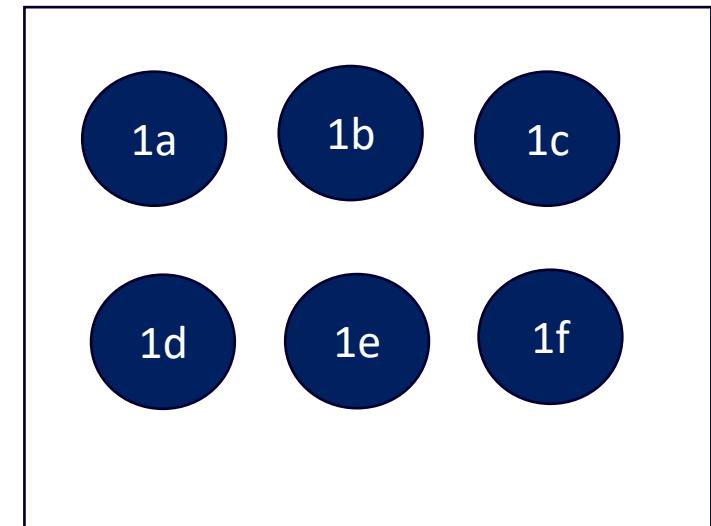
MyBlockchainExperts ▾ N. Virginia ▲	
US East (N. Virginia) us-east-1	
US East (Ohio)	us-east-2
US West (N. California)	us-west-1
US West (Oregon)	us-west-2
Africa (Cape Town) af-south-1	
Asia Pacific (Hong Kong)	ap-east-1
Asia Pacific (Mumbai)	ap-south-1
Asia Pacific (Seoul)	ap-northeast-2
Asia Pacific (Singapore)	ap-southeast-1
Asia Pacific (Sydney)	ap-southeast-2
Asia Pacific (Tokyo)	ap-northeast-1
Canada (Central) ca-central-1	
Europe (Frankfurt)	eu-central-1
Europe (Ireland)	eu-west-1
Europe (London)	eu-west-2
Europe (Milan)	eu-south-1
Europe (Paris)	eu-west-3
Europe (Stockholm)	eu-north-1
Middle East (Bahrain) me-south-1	
South America (São Paulo)	sa-east-1

Zone status

Zone	Status
us-east-1a (use1-az1)	✓ Zone is operating normally
us-east-1b (use1-az2)	✓ Zone is operating normally
us-east-1c (use1-az4)	✓ Zone is operating normally
us-east-1d (use1-az6)	✓ Zone is operating normally
us-east-1e (use1-az3)	✓ Zone is operating normally
us-east-1f (use1-az5)	✓ Zone is operating normally

AWS Global Infrastructure

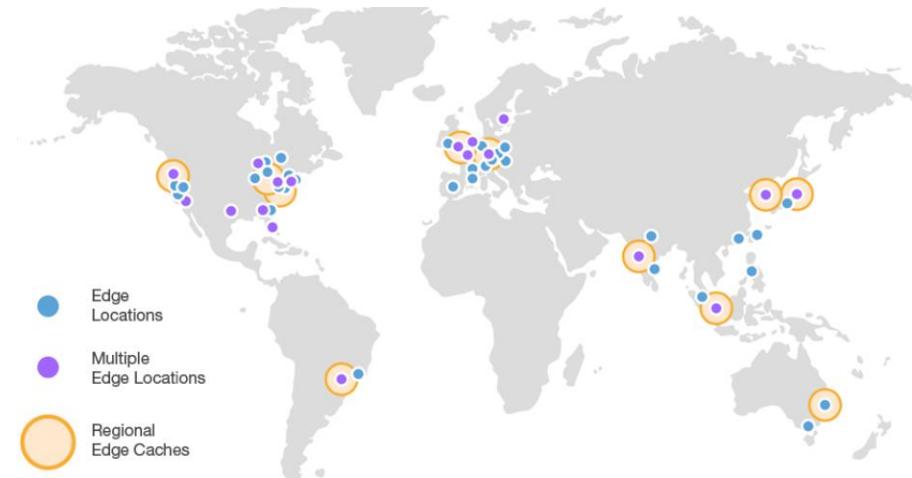
- Regions and Availability Zones
- Region – US East (6 Zones)



Regions and Zones

AWS Global Infrastructure

- Edge Locations are **AWS endpoints** that cache content locally to provide lower latency for the users.
- Services Supported: Amazon CloudFront, Amazon Route 53, AWS Firewall Manager, AWS Shield, and AWS WAF
- 210+ Edge Locations and 12 Regional Edge Caches



Regions and Zones

AWS Global Infrastructure

- AWS Local Zones are a type of AWS infrastructure deployment that places AWS compute, storage, database, and other select services close to large population, industry, and IT centers.
- Boston, Houston, and Miami





Cloud APIs

Application Programming Interfaces (API)



Lesson Key Objectives

What is an Application Programming Interfaces (API)?

1

Define Common Types of Application Programming Interfaces (API)

2

What is an Application Programming Interfaces (API) Gateway?

3

What is a Cloud Native Applications?

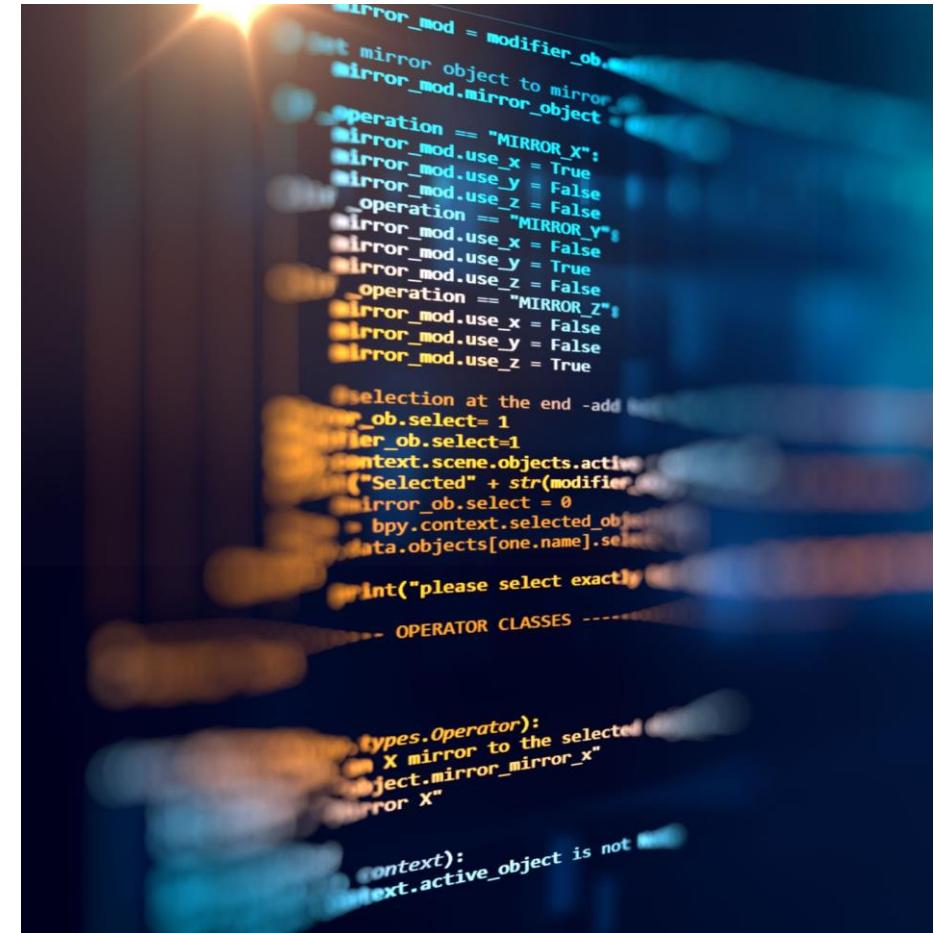
4



Application Programming Interfaces (API)

An Application Program Interface (API) is code that allows two software programs(on devices)to communicate with each other.

- ***Two parts.*** Specification and the Interface
- ***Examples:*** REST, OPEN, Proprietary



Application Programming Interfaces (API)

.Application Programming Interfaces (API) Comparison

Common APIs are

- SOAP
- REST
- XML
- JSON-RPC
- gRPC
- Thrift (Apache)

JSON	XML
Text and numbers supported	Various types of data
Data focused	Document focused
Low security	Higher security



Application Programming Interfaces (API)

Application Programming Interfaces (API) Design

There are four key layers you'll need to consider when planning your cloud architecture:

- ❑ Information management layer — your data repositories.
- ❑ Application layer — where your applications live.
- ❑ Integration layer — where APIs connect your services.
- ❑ Interaction layer — where your API gateway enables interaction between employees, customers, and partners.
- ❑ The **API gateway** plays a critical role in your cloud deployment. It allows you to deploy across multiple clouds, enforce security policies, and control access.

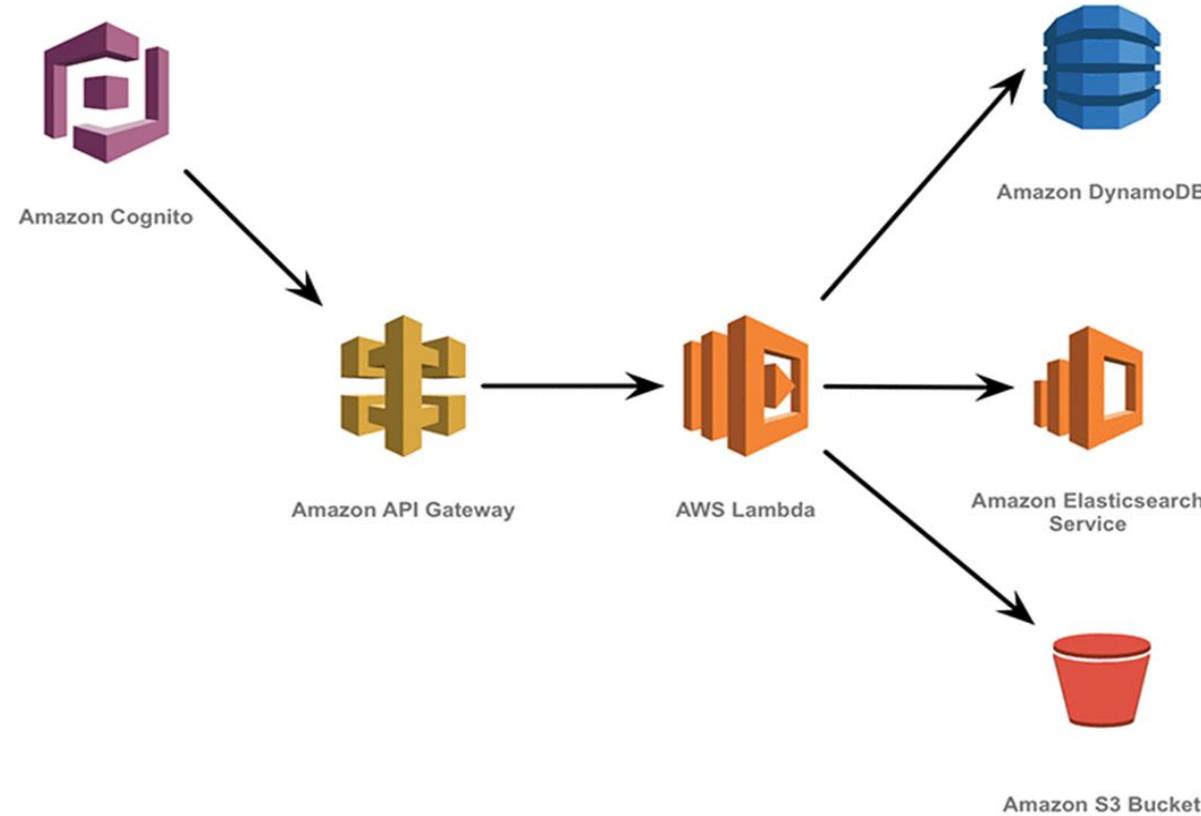


Application Programming Interfaces (API)

An **API gateway** is a fully managed service that makes it easier for developers to create, publish, maintain, monitor, and secure APIs at almost any scale

- Mashery
- AWS Gateway
- GCP Cloud Endpoints

Diagram - AWS



Application Programming Interfaces (API)

.Cloud Native and Cloud First

- ❑ **Cloud first** is an approach where businesses prioritize the use of cloud-based services over on-premise solutions.
- ❑ **Cloud native** refers to a design and development approach that focuses on building applications and services specifically for cloud environments
- ❑ A **cloud-native application** is specifically designed from the ground up to take advantage of the elasticity and distributed nature of the cloud. Cloud-native applications are typically broken down into multiple, self-contained services through the use of technologies and methodologies, namely DevOps, continuous delivery and continuous integration, containers, microservices, and declarative APIs.



Responding to Customer Requirements

Section 2.2



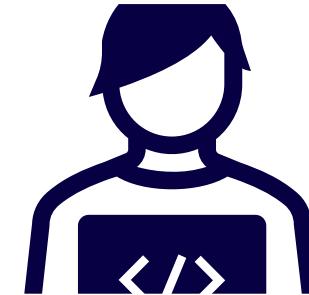
Section 2.2 Lesson Overview



Request for
Proposals(RFP)



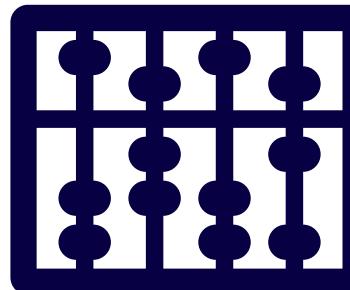
Proposals Types
and Sections



Design Solutions
Architectures



What is a Cloud
Fit



Analytical
Process Thinking



Request for Proposals

Technical Response

Lesson Key Objectives

What is a proposal?

1

What are the proposal sections?

2

What is the technical response

3

What is the federal procurement process?

4



Responding to RFPS

An RFP must describe and define the project in enough detail to attract viable responses.

- ❑ RFPs for the government sector, for example the US Government have strict response requirements for bidders.
- ❑ The prospective bidder(likely your company) must be able to understand the nature of the business and the goals of the solicitor wishes to achieve with the project.
- ❑ Always tailor your proposal response to the RFP and always respond to the questions posed with your technical solutions framed in a manner that shows your solutions solving the challenge(s).



Responding to RFPS



US Federal Sector RFPs must follow a strict process for a possible award.

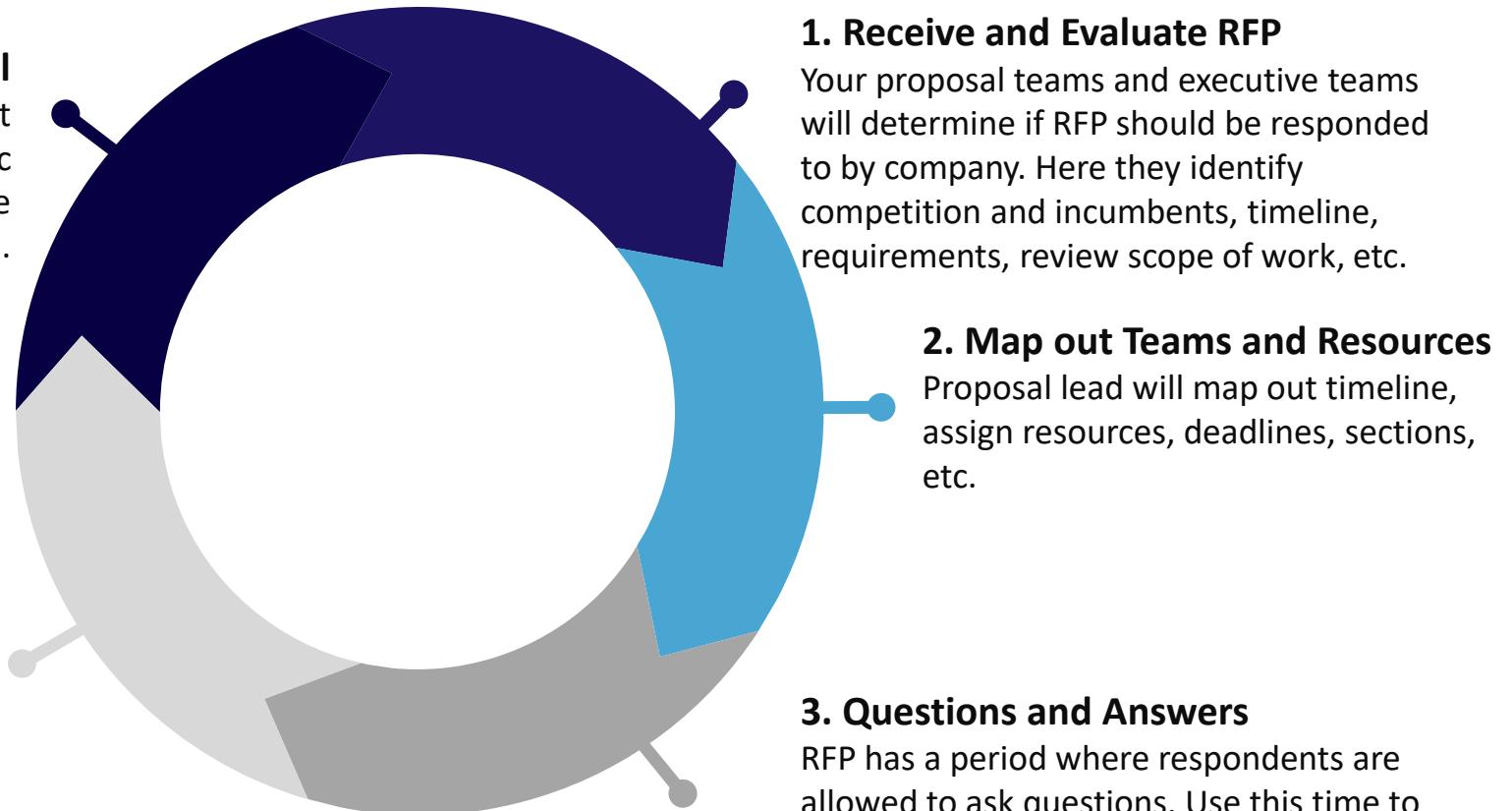
- ❑ The specific format and strict composition of a federal government RFP are mandated by the rules in the Federal Acquisition Regulations (FAR)
- ❑ The RFP defines what must go into a proposal and how it must be structured.
- ❑ Government RFPs based on the FAR are broken down into sections identified by letters A – M.
- ❑ Example – Section A - Solicitation
Section C – Scope of Work

Responding to RFPS

Section	Overview
Executive Summary	High level overview of the proposed solution.
Table of Content (TOC)	Provides insight into content and page number.
Technical Background and Expertise	Highlight the value your technical solution brings to the table.
Technical Approach	Provides a specific roadmap on how, when, etc your deliverables will be received.
Costs	Identify costs for the solution.
Staffing (Resumes)	Identify SMEs and other resources that will be involved in delivering solution.
Expected Outcome	Expectations that the buyer/solicitor will receive.
Summary	Expected outcomes in summarized form.
References/Past Performance	Provide references and past performance.
Risk Management Plan	Identify how risks will be identified and frameworks you will follow
Transition Plan	Transitions from current solution/contract to new solution/contract



Federal Procurement Process



Topic Discussion





Technical Response

Technical Response

Lesson Key Objectives

Responding to Proposals

1

Technical Response

2



Responding to RFPS

Technical Response

- ❑ Work with your sales teams, technical writers and if applicable your proposal lead.
- ❑ Review procurement guidelines
- ❑ Review compliance requirements
- ❑ Identify visual aids such as infographics, tables, charts, etc.
- ❑ Always tailor your proposal response to the RFP and always respond to the questions posed with your technical solutions framed in a manner that shows your solutions solving the challenge(s).



Responding to RFPS

Section	Overview
Executive Summary	High level overview of the proposed solution.
Table of Content (TOC)	Provides insight into content and page number.
Technical Background and Expertise	Highlight the value your technical solution brings to the table.
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Summary	Expected outcomes in summarized form.
References/Past Performance	Provide references and past performance.
Risk Management Plan	Identify how risks will be identified and frameworks you will follow
Transition Plan	Transitions from current solution/contract to new solution/contract



Topic Discussion





Design Solutions Architectures

Best Practices for Designing



Lesson Key Objectives

Designing the architecture.

1

Best Practices

2



Topic Discussion





What is a Cloud Fit

Proposing the correct solution first.



Lesson Key Objectives

What is a Cloud Fit

1

How to Identify the right solution

2



Topic Discussion





Analytical Thinking

Thinking First, Solving Problems Next



Lesson Key Objectives

Importance of Analytical Thinking

1

Example of Analytical Thinking Process

2



Topic Discussion



Handling US Federal Sector Requirements

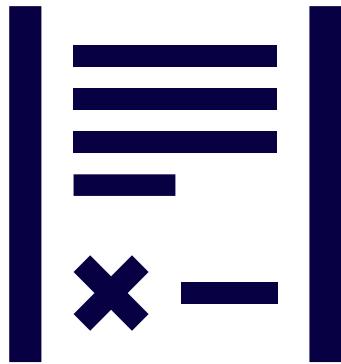
Section 2.3



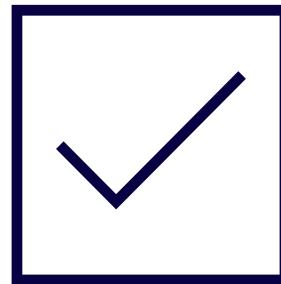
Section 2.3 Lesson Overview



Why the US Federal
Sector is so different



Proposal Teams



SMEs



Searching for
Opportunities



Why the US Federal Sector is so Different

Comparing to Commercial and SLED

Lesson Key Objectives

Comparing Federal Procurement to SLED/Commercial

1



Topic Discussion





Proposal Teams

Overview

Lesson Key Objectives

Proposal Team Colors and where presales and SE fit in.

1

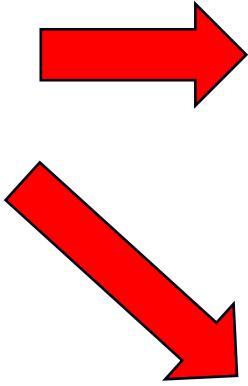
What are common team members?

2



Proposal Team Review Structure

SMEs
work
here



Section	Overview
Blue Team	Focuses on the win strategy and outline of the proposal
Pink Team	Creates a compelling narrative by completing a first draft
Red Team	Examines the proposal for clarity and compliance
Green Team	Assesses the solution's cost and financial feasibility (technical changes)
Gold Team	Provides the high-level review and stamp of approval
White Team	Acts as the final quality control before submission to agency



Proposal Team Members

Member	Overview
Proposal Manager/Coordinator	The proposal coordinator or proposal manager is commonly from marketing or Business development. Acts as the coach and the leader of the proposal team.
Capture Manager	The capture manager will review leads and proposal sites to determine potential for opportunity.
Proposal Writer	The proposal writer is in charge of proposal content and collaboration with team members.
Subject Matter Experts (SME)	An SME is the technical experts in a specific field. (Example, Data Storage, Enterprise Architecture, etc)
Executive Level Reviewer	The Executive Level Reviewer is commonly the approver as well and is the final reviewer before submitting to customer.
Editor	The proposal editor will ensure accuracy of the content and to ensure the corporate messaging is as expected.
Designer	The designer is concerned with the formatting and layout of the proposal
Costing Manager	The costing manager ensures the pricing is compliant, competitive and accurate.
Transition Plan	Transitions from current solution/contract to new solution/contract





Proposal SME (Technical)

Overview

Lesson Key Objectives

What is a Subject Matter Expert (SME)

1

What an SME will be responsible for?

2

What is proposal language?

3



Topic Discussion





Searching for Opportunities

Where to look for business opportunities

Lesson Key Objectives

Where to find RFPS

1

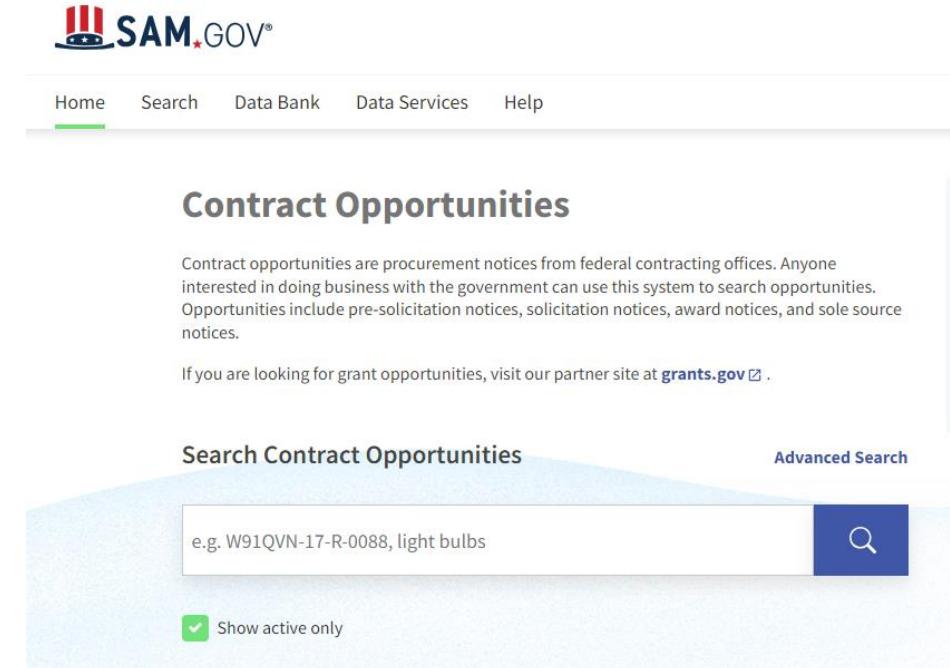
Common Sites for Federal Procurement

2



Searching Sites for Opportunities

- ❑ Fedbizops – Depracted
- ❑ SAM.gov - <https://sam.gov/content/opportunities>
- ❑ USASpending - <https://www.usaspending.gov/>
- ❑ Federal Procurement Data System
https://www.fpds.gov/fpdsgn_cms/index.php/en/
- ❑ Dynamic Small Business Search (DSBS)
https://dsbs.sba.gov/search/dsp_dsbs.cfm
- ❑ SubNet - https://subnet.sba.gov/client/dsp_Landing.cfm



The screenshot shows the SAM.gov homepage with the following elements:

- Logo:** SAM.gov® with a red, white, and blue stylized 'S' icon.
- Navigation Bar:** Home (highlighted in green), Search, Data Bank, Data Services, Help.
- Section Header:** Contract Opportunities
- Description:** Contract opportunities are procurement notices from federal contracting offices. Anyone interested in doing business with the government can use this system to search opportunities. Opportunities include pre-solicitation notices, solicitation notices, award notices, and sole source notices.
- Text:** If you are looking for grant opportunities, visit our partner site at [grants.gov](#).
- Search Bar:** Search Contract Opportunities (placeholder: e.g. W91QVN-17-R-0088, light bulbs) and Advanced Search link.
- Filter:** Show active only (checkbox checked).



Handling Sales Engineering Activities

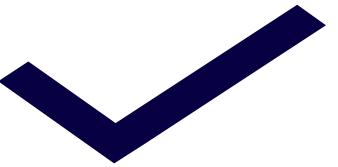
Section 2.4



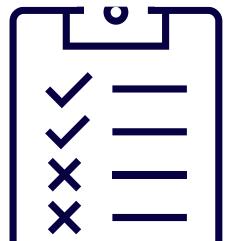
Section 2.4 Lesson Overview



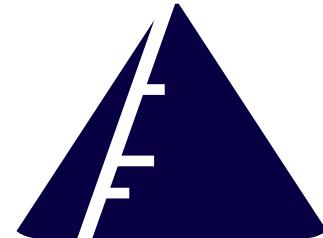
Closing a Solution Sale



Defining Expectations and Results



Defining Customer Discussion Agenda



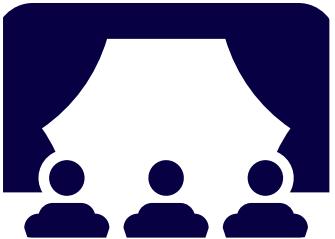
Pyramid Principle (Minto Pyramid)



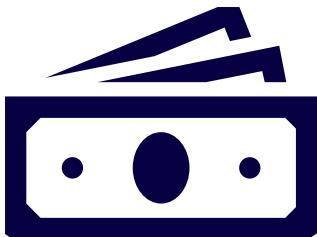
Proof of Concepts (POC)



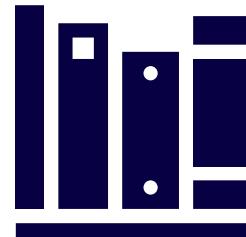
Performing Demonstrations



Whiteboarding Best Practices



Vendor Cost Optimization



Using Solutions Collateral



Module Review



Review Questions



Closing a Solutions Deal

Discussion



Lesson Key Objectives

Discussing a Deal

1

Closing a Deal

2



Closing a Solutions Deal

Close the Deal

- Focus on the Customer (Prioritize)
- Play as a Team member (AE, SE, Sales Manager, SE Manager, BD, etc)
- Sales Planning (AE is primary here)
- Work with your “Champion” aka advocate if possible.
- Add Value that is clearly visible.
- Execute the Sales Plan
- Understand your never done selling and solutioning.





Defining Expectations

Discussion

Lesson Key Objectives

Understanding Customer Expectations

1

Meeting Customer Expectations

2



Topic Discussion





Defining Customer Discussion Agenda

Discussion

Lesson Key Objectives

Customer Meetings

1

Setting and Agenda

2



Topic Discussion





Pyramid Principle

Minto Pyramid



Lesson Key Objectives

What is Pyramid Principle?

1

What are the principles to follow?

2



Pyramid Principle

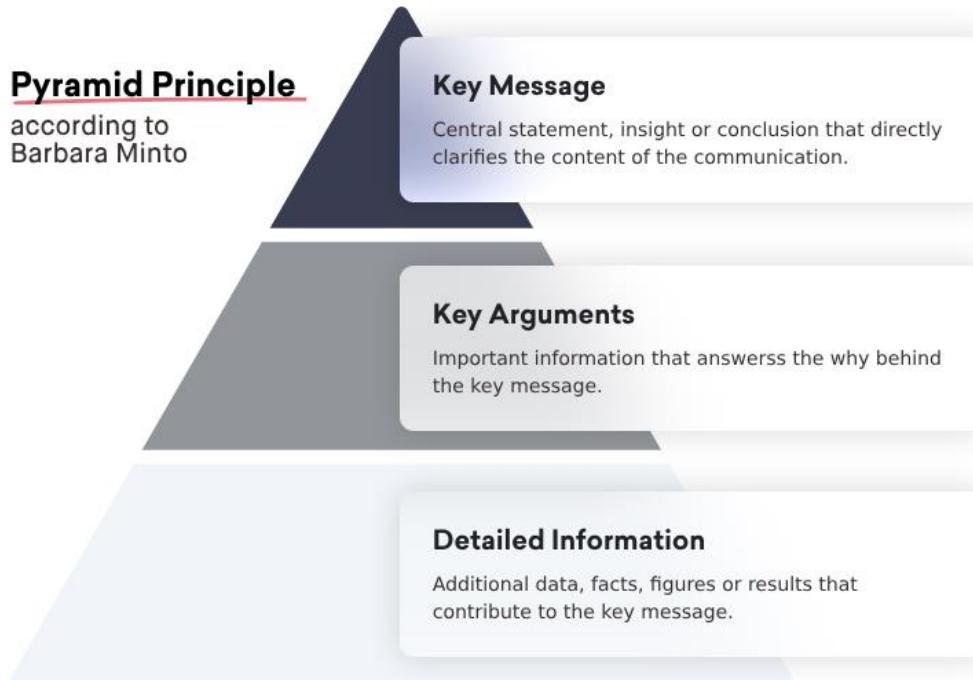
- ❑ The **Minto-Pyramid** is a communication method that is designed to convey specific information to the recipient as quickly and clearly as possible.
- ❑ **Creator** - Barbara Minto, a former McKinsey employee who developed the pyramid-principle in the 1960s.
- ❑ **Concept** - Structuring your message to lead with the core message.
- ❑ **Goal** - Enable the recipients of your message to quickly and easily understand your information.



Pyramid Principle

Pyramid Principle

according to
Barbara Minto



- **Key Message:** The enterprise network needs to scale up to handle the increased external data services which in turn would reduce application latency.
- **Key arguments:** The current workload has latency that creates customer complaints.
- **Detailed information:** Network bandwidth testing and assessments need to be performed by company A resulting in a prepared report detailing what needs to be addressed to meet objectives.



Proof of Concepts (POC)

Validating and testing a proposed solution

Lesson Key Objectives

What is Proof of Concept?

1

How to perform a Proof of Concept (SE Focus)

2

Resources of a Proof of Concept (SE Focus)

3



Topic Discussion





Performing Demonstrations

Demonstration



Lesson Key Objectives

What is Demonstration?

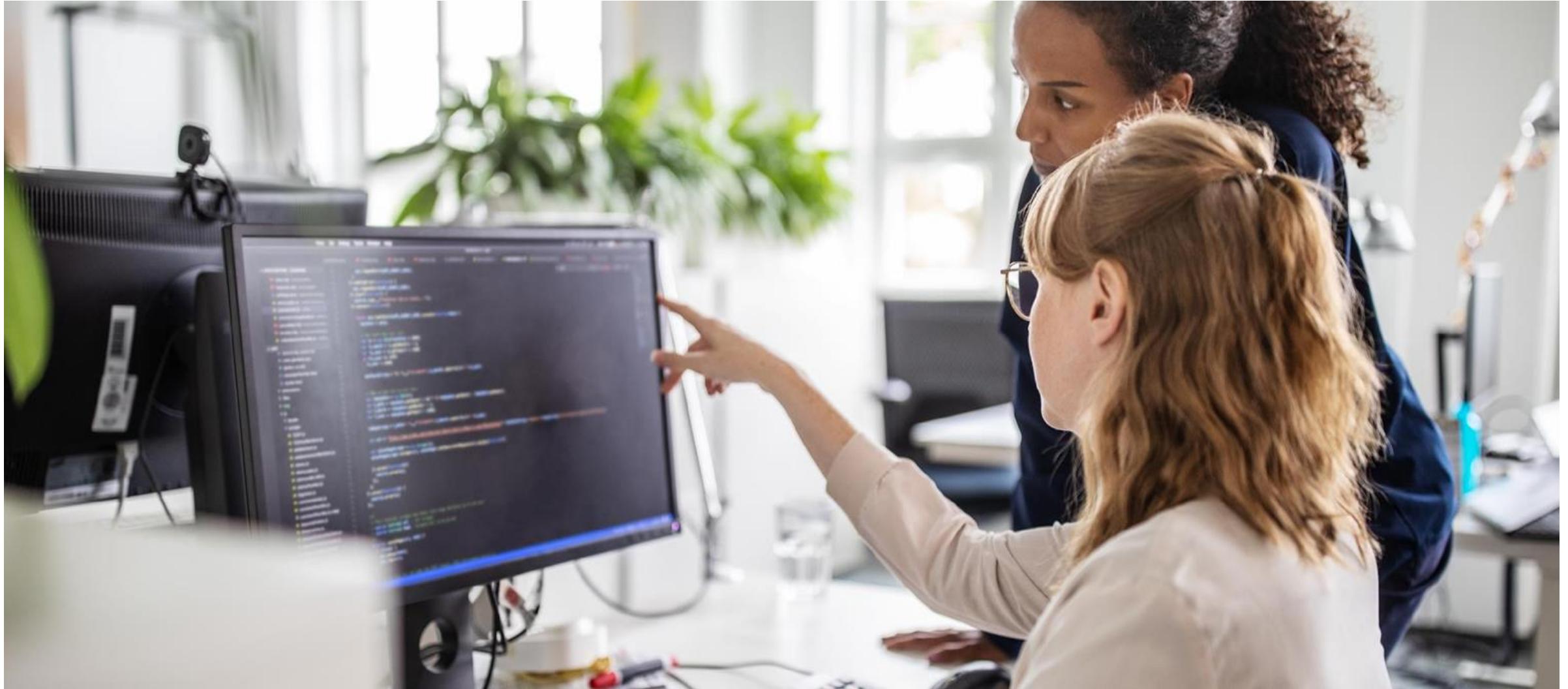
1

How to perform a Demonstration(SE Focus)

2



Demonstration





Whiteboarding Best Practices

Effective whiteboarding for SEs



Lesson Key Objectives

What is Whiteboarding?

1

How to perform a whiteboard session

2



Topic Discussion





Vendor Cost Optimization

Obtaining the best value and concessions.

Lesson Key Objectives

What is Vendor Cost Optimization?

1



Topic Discussion





Using Solutions Collateral

Resources needed to provide to customers

Lesson Key Objectives

What is Solutions Collateral and Types?

1



Topic Discussion



Module Review Summary

Short Summary of what we covered in this module



Module Review Summary

- ❑ **Sales Engineering** is a hybrid practice that is focused on selling complex technical solutions to customer bases.
- ❑ **Cloud Computing** is a business model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.
- ❑ **NIST SP 800-145** Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.
- ❑ This cloud model is composed of **five essential characteristics, three service models, and four deployment models.**
- ❑ **A cloud service model** is defined according to who's responsible for what responsibilities.
- ❑ **A cloud deployment model** is defined according to where the infrastructure for the deployment resides and who has control over that infrastructure.
- ❑ The **five cloud characteristics** are On Demand Self Service, Broad Network Access, Resource Pooling, Rapid Elasticity, Measured Service
- ❑ Without virtualization effectively cloud computing would not be economically viable. **Virtualization drives and enables the cloud as a business model**



Module Review Summary

- The **three main building blocks** of cloud services to know are Infrastructure, Applications and Services
- An **Application Program Interface (API)** is code that allows two software programs(on devices)to communicate with each other. **Two parts** to an API are specification and the interface
- The specific format and strict composition of a federal government RFP are mandated by the rules in the **Federal Acquisition Regulations (FAR)**
- **The RFP defines** what must go into a proposal and how it must be structured.
- The prospective **bidder** must be able to understand the nature of the business and the goals of the **solicitor** wishes to achieve with the project.
- Pre Sales professionals are commonly engaged in two specific proposal teams. **Pink Team and the Green Team.**
- An **SME** is the technical experts in a specific field
- **SAM.Gov** is where you can find contracting opportunities with the federal government.
- The **Minto-Pyramid** is a communication method that is designed to convey specific information to the recipient as quickly and clearly as possible.
- When working on a deal remember to ensure you work within the sales plan and always focus on the customer. **(Prioritize)**
- Whiteboarding, performing demos and POCs have **best practices and internal policies** to follow.



Module Review Questions

Let's Test our knowledge



Module Review Questions

1. Cloud Computing has _____ Service Models, _____ Deployment Models according to NIST?

- A. 4, 4
- B. 5,3
- C. 3, 5
- D. 3,4



Module Review Questions

1. Cloud Computing has _____ Service Models, _____ Deployment Models according to NIST?

- A. 4, 4
- B. 5,3
- C. 3, 5
- D. **3,4**

Explanation: Cloud Computing has three service models and four deployment models as specified by NIST.



Module Review Questions

2. You're currently working at XYZ corporation as a pre-sales engineer and one of your new customers has requested a Proof of Concept for a new service your company sells. What would be the best plan of action for you to engage the customer? (Select Three)

- A. Setup the Proof of Concept immediately
- B. Discuss with your Account Executive (AE) first.
- C. Identify the appropriate resources for a POC and obtain approval
- D. Setup the Proof of Concept once customer signs disclosures.
- E. Identify the scope of the POC and how success will be measured.



Module Review Questions

2. You're currently working at XYZ corporation as a pre-sales engineer and one of your new customers has requested a Proof of Concept for a new service your company sells. What would be the best plan of action for you to engage the customer? (Select Three)

- A. Setup the Proof of Concept immediately
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- E. Identify the scope of the POC and how success will be measured.



Module Review Questions

3. An Application Programming Interface(API) has two parts. What are they? (Select Two)

- A. Specification
- B. Program
- C. Interface
- D. License



Module Review Questions

3. An Application Programming Interface(API) has two parts. What are they? (Select Two)

- A. Specification
- B. Program
- C. Interface
- D. License

Explanation: The API has two part the specification and the interface. The specification is a formal document that outlines how the API elements are to work. The Interface can be thought of as a contract of service between two applications and defines how the two communicate with each other using requests and responses



Module Review Questions

4. A _____ is a physical location around the world where AWS clusters their data centers.

(Select One)

- A. Region
- B. Zone
- C. Local Zone
- D. Cluster



Module Review Questions

4. A _____ is a physical location around the world where AWS clusters their data centers.

(Select One)

- A. Region
- B. Zone
- C. Local Zone
- D. Cluster

Explanation: Region is a physical location around the world where AWS clusters their data centers while an Availability Zone (AZ) is one or more discrete data centers with redundant power, networking, and connectivity in an AWS Region



Module Review Questions

5. We learned that the Minto-Pyramid is a communication method that is designed to convey specific information to the recipient as quickly and clearly as possible. What part of the pyramid would you insert the important data, facts, figures, etc to backup your message? (Select One)

- A. Key Message
- B. Detailed Message
- C. Detailed Information
- D. Key Arguments



Module Review Questions

5. We learned that the Minto-Pyramid is a communication method that is designed to convey specific information to the recipient as quickly and clearly as possible. What part of the pyramid would you insert the important data, facts, figures, etc to backup your message? (Select One)

- A. Key Message
- B. Detailed Message
- C. **Detailed Information**
- D. Key Arguments

Explanation: The detailed information is where we would have additional facts, figures, etc that back up the key message and arguments.



Course Components

01

Domain 1 – AI/ML Fundamentals (35%)

02

Domain 2 – Solution Development and Proposals (30%)

03

Domain 3 – Customer Relationship Management(35%)



Domain 3 – Customer Relationship Management

Module 3 – CCASA Exam

Become that Trusted Advisor for your Enterprise customers



Module 3 Sections

- 01 Section 3.1 - Customer Relationships
- 02 Section 3.2 - Becoming that Trusted Advisor
- 03 Section 3.3 - Sales Cycle and Qualifying the Opportunity
- 04 Section 3.4 - Ethical Considerations

Customer Management Fundamentals 3.1

Tested Areas



Section 3.1 Lesson Overview

Customer
Management
Fundamentals

Customer
Acquisition

Customer
Engagement

Understanding the
Stakeholders

Potential clients
and industries
benefiting from
AI/ML solutions.

Develop effective
lead generation
strategies for
AI/ML services.





Customer Management

Ensuring the Fundamentals

Customer Management

Customer Management is an important process in the sales cycle that incorporates systems, tools, and processes to develop and manage customer relationships and ensure customer success.

- Customer Relationship Management (CRM)
- Tools – Salesforce, Zoho, etc.
- Customer Satisfaction
- Process that must be managed effectively
- Every customer is special, no two the same.



Customer Management

Customer Management Strategy

Is critical for a sales organization to have in place to ensure that customers are “managed” properly.

- Includes a **CRM**
- Includes **training** for the sales teams
- Includes **internal processes**
- Includes a **customer journey**





Customer Acquisition

How your customers are acquired and pipelines

Customer Acquisition

Customer acquisition is the process of bringing new customers to your business and then converting them into paying customers.

- Business Growth
- Revenue Opportunities
- Relationships by meeting objectives
- Cycle of Growth
- Metrics



Customer Acquisition



Customer Acquisition Key Metrics

- **Cost of Customer Acquisition (CAC)** is calculated by the marketing –sales expenses/new customers = CAC
- **Return on Investment (ROI)** – Amount invested result of net income / investment costs x 100
- **Customer Acquisition Channels (CAC)** are the resources used to gain new customers.



Customer Acquisition

Customer Acquisition Concepts

❑ 5 Stages of Customer Acquisition-

1. Awareness
2. Appeal
3. Ask
4. Act
5. Advocacy



Customer Acquisition



Customer Acquisition Concepts

- **Acquisition Strategy**- is determined by the (Sales Org)
- **Acquisition Costs** - is determined by the (CAC)
- **Acquisition Channels commonly are** - Inside Sales, Partners, Direct
- **Sales Pipeline** – is the sales process steps that the sales team takes for a deal to close. Sales organization commonly visualize stages of the pipeline.
- **Sales Funnel** – Is focused on gathering leads and the process buyers goes thru.
- **Sales Forecast** – An estimation of the sales team's potential revenue if closed.





Customer Engagement

Communicating Effectively



Customer Engagement



Customer engagement is focused on keeping the attention of the customer. The objective of customer engagement is to encourage loyalty and promote business through word-of-mouth marketing.

The three pillars of great customer engagement are

- **1. Customer service**
- **2. Brand loyalty**
- **3. Employee experience**

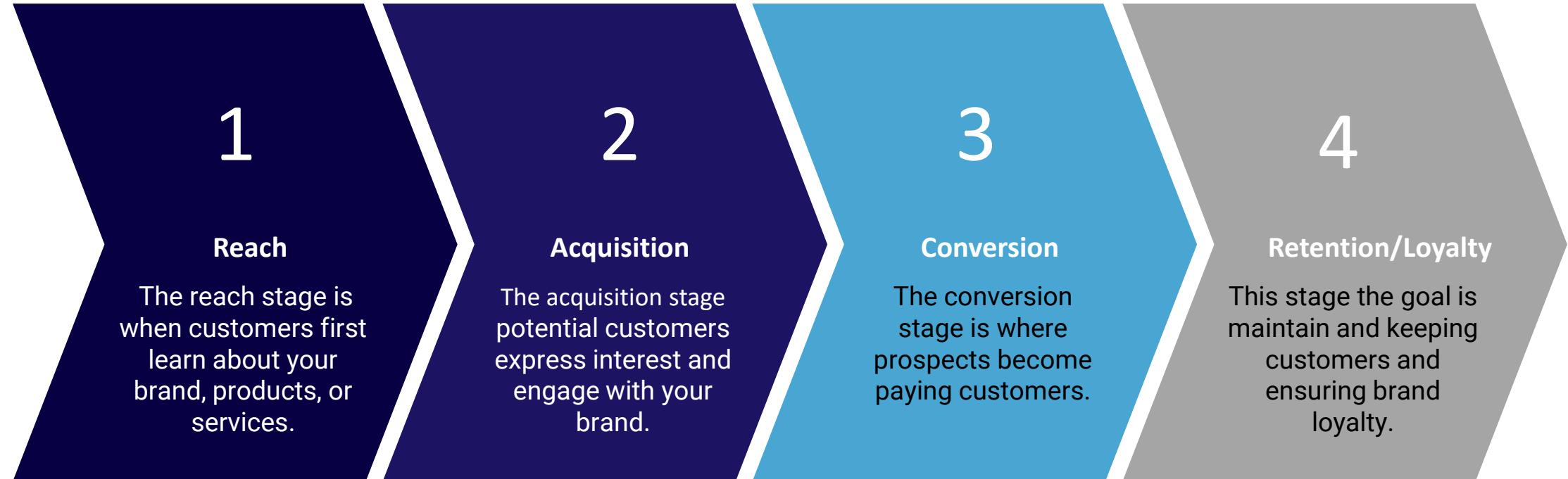
Customer Engagement

Customer Engagement Metrics

- ❑ **Customer Lifetime Value (CLV)** - CLV is the projected revenue a customer is expected to generate over their lifetime as a customer
- ❑ **Churn Rate** – Churn rate is customer engagement indicator that shows the number of customer leaving your services.
- ❑ **Retention Rate** – Retention rate shows the number of customers staying around paying for new services, support, training, etc.



AI Customer Engagement Lifecycle





Understanding the Stakeholders/Buyers

Who is your ideal customer?

Understanding the Buyer

Identify who your buyer really is?

- SMB
- Large Enterprise
- Educational
- Government



Understanding the Buyer

Identify who your buyer really is?

Some common industries and verticals

- Technology**
- Financial**
- Industrial**
- Education**
- Medical**
- Government**



Topic Discussion





Potential Clients and Industries that can benefit from AI/ML

Who is your ideal customer?



Develop effective lead generation strategies for AI/ML services.

Finding the right relationship for AI business

Become a Trusted Advisor 3.2

Tested subject areas



Section 3.2 Lesson Overview

What is a
Trusted Advisor

Traits of a
Trusted Advisor

Objection
Handling

Presenting a
Business Case

Creating Value
Propositions
(Uplift Metrics)

Importance of
Expertise

AI Value Driven
Executive
Messaging





What is a Trusted Advisor

Importance of a Trusted Advisor

Lesson Key Objectives

What is a Trusted Advisor?

1

How to know you're a Trusted Advisor?

2

Benefits of a Trusted Advisor.

3



Become a Trusted Advisor

What is a Trusted Advisor?

A **trusted advisor** is an individual that works collaboratively with their clients as a strategic partner and who also has the customers best interests at heart.

- A **Trusted Advisor** wants the customer to succeed.
- Understand the customer's needs, goals, challenges, and opportunities.
- Offers value by providing direct and actionable insights
- Thinks long-term and build relationships
- Focuses on meeting or exceeding customer requirements.



Become a Trusted Advisor



How do you know you're a trusted advisor?

- There are several distinct differences in the relationship of a trusted advisor versus being a vendor or supplier.
- Trusted advisors' relationships are based on when and to what extent your customers ask for your input and advise.
- Trusted advisors are usually asked for input on more general industry or customer-specific issues, not just on the products or services they offer.
- Trusted advisors are likely going to be linked to several departments in an organization, not just one.



Become a Trusted Advisor

Benefits of being a Trusted Advisor

- Higher guarantee of customer retention
- Provides a stronger relationship that provides value for both companies.
- Accomplishes better efficiency in deal making
- Receives news and updates before others therefore positioning the vendor in a better position.
- Provides for better forecasting for the sales organization.
- Customer respects your position and enables your success.





Trusted Advisor Traits

Traits of Trusted Advisor

Lesson Key Objectives

Identify Common Trusted Advisor Traits

1



Become a Trusted Advisor

What is a Trusted Advisor?

Common traits of a trusted advisor should include the following.

- Industry Expertise
- Personable/Friendly
- Responsible/No Excuses
- Honesty/Integrity
- Reliable/Prompt





Customer Objection Handling

Managing and overcoming customer objections

Lesson Key Objectives

Define what objection handling is.

1

Identify the 4P's of NO!

2

How to handle objections.

3



Customer Objection Handling

What is Objection Handling?

Objection handling is a critical response to a customer in a way that changes their mind or alleviates their concerns so the deal could proceed.

- 4Ps of No** - Personalization, Perceived Value, Performance Value, and Proof
- Aka **Sales Objection** and we must listen to and then explore the objections before we can respond.



Customer Objection Handling

Common Objections

- Trust in the solution or you.
- Lack of **Need** for the solutions
- Lack of **Urgency**
- Lack of **Understanding** of the challenges



Handling Objectives



- 01 Practice Listening and don't interrupt customer
- 02 Repeat and confirm what you understand
- 03 Validate the customers concerns
- 04 Use Follow Up Questions
- 05 Utilize appropriate sales tools and social proofs
- 06 Anticipate objections during a follow up and be ready



Business Use Cases

Importance of a business use case

Lesson Key Objectives

What is a business use case?

1

What are the main reasons for a business use case?

2



Business Use Case

What is a Business Case?

A **business case** is a document that presents the costs, risks, and benefits of a particular initiative, justifies the investment, and pitches because decision-makers should approve of the recommendation.

Why a Business Use Case?

- Present the need and rationale for the purchase.
- Obtain buy in for funding
- Add resources such as staff or contractors
- Change the scope of a project





Uplift Metrics

Value Quantified



Lesson Key Objectives

What are uplift metrics

1

Identify importance of uplift metrics and best practices

2

Identify and provide for some examples of uplift metrics

3



Uplift Metrics

Uplift Metrics are what we use to “influence” the deal and are the foundation of the business case.

Common Best Practices

- Always use **customers language** (jargon)
- Consider **customers demographics**
- Assemble **conservative estimates**
- Use proven **case studies**
- Use **neutral research sources**
- Partner with client to develop Use Case



Uplift Metrics

Uplift Metrics Examples

- Reduces TCO by 70%. Current vs Proposed
- Faster Time To Market is 2 months faster with proposed solution which could increase revenue by 100%.





Importance of Subject Matter Expertise

Why you need SMEs and when to engage

Lesson Key Objectives

Discuss what an SME is?

1

Identify when to engage an SME

2



Importance of Expertise

Expertise is critical to have in play

You as the presales expert will need to know your solutions inside and out in some cases. You may also need to engage with other SMEs to ensure presentations, webinars, meetings all provide the customer prompt answers to their questions and concerns

- Engage SME's
- Prepare ahead of time
- Anticipate questions that can occur
- Address resources for specializations and industries



Topic Discussion





Executive Messaging

Addressing the C Suite.

Lesson Key Objectives

Discuss what executing messaging is important.

1

Identify common best practices in executive messaging.

2



Executive Messaging

Executive Messaging is focused on how we address the C Suite and the board of companies.

Common best practices are:

- Be Direct and ensure focus
- Address the audience correctly and seek agreement
- Schedule a follow up action plan as needed
- Use targeted numbers and metrics
- Use visuals as needed
- Avoid technical jargon and speak high level (Macro vs Micro)



Topic Discussion



Sales Cycle and Qualifying the Opportunity 3.3

Tested subject areas



Section 3.3 Lesson Overview

Conducting
Discovery

Asking the
Right
Questions

Identifying
Business
Outcomes

Identifying and
Qualify the AI
Opportunity

Perform Needs
Analysis

Create that
win win
situation

Solution
Selling
Mindset

Customer
Budget





Conducting Discovery

Validating if there is an opportunity

Conducting Discovery

What is “Discovery”

- ❑ A **sales opportunity** is a qualified prospect that has a high likelihood of becoming a paying customer after proper discovery.
- ❑ Identifying the opportunity can occur in many ways such as inside sales, referrals, advertising, etc.
- ❑ **Discovery Calls** are commonly initiated by Account Executive.



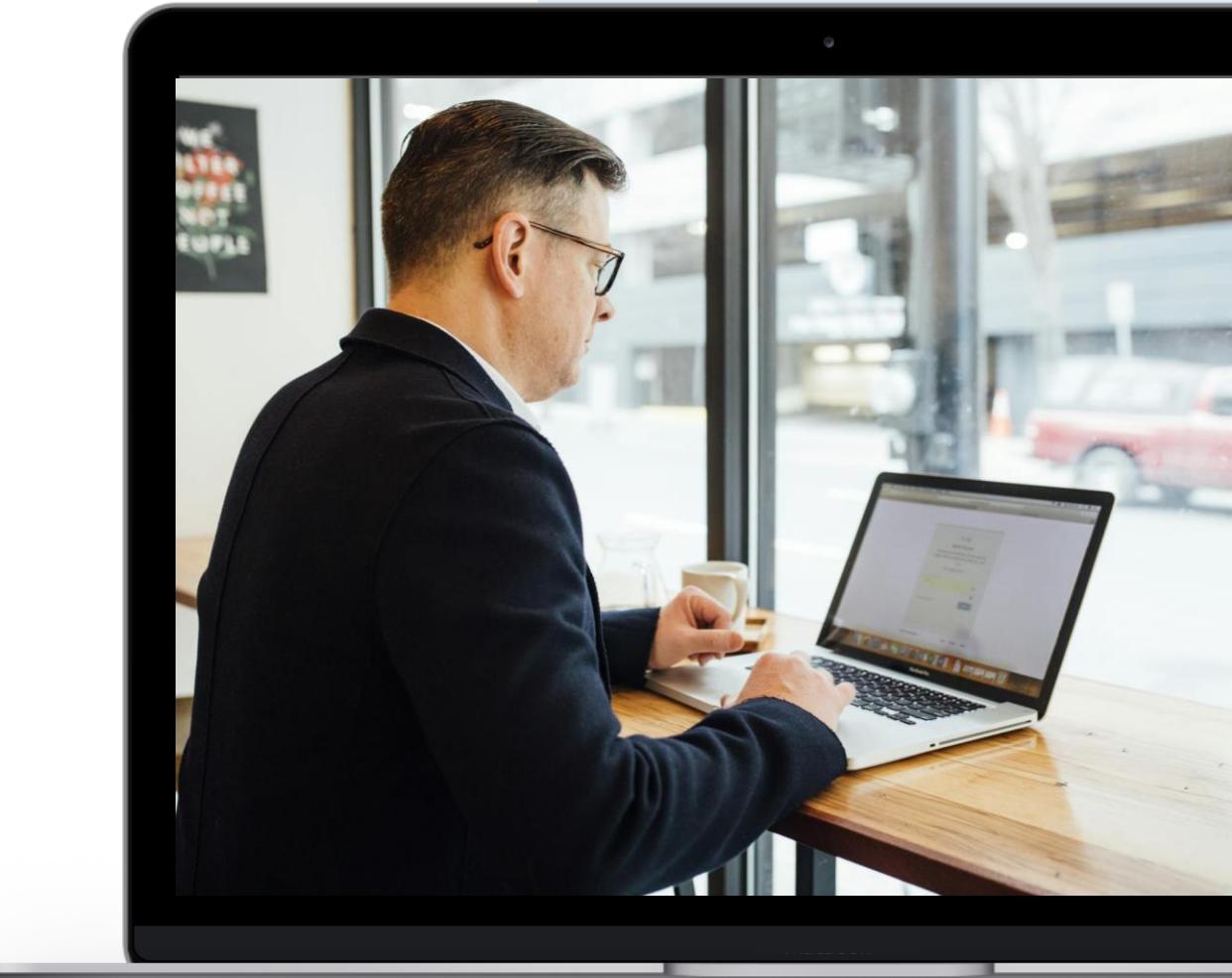
Conducting Discovery

What is the BANT Framework?

"Budget, Authority, Need, Timing." It provides a simple framework for qualifying prospects in a business-to-business (B2B) sales setting.

Important framework for evaluating sales prospects.

- Budget**
- Authority**
- Need**
- Timing**



Conducting Discovery - BANT Framework

B

Does the customer have a budget? (Approval)

A

Does the contact have the authority for the approval?

N

Does the company have a need for the solution? (Problem identified)

T

Does the customer have a timeline set for the project?





Conducting Discovery

Common Discovery Questions

- What is your current cloud environment consisting of for data services?
- What are your pain points you hope to solve with a new solution?
- How does your organization handle data transactions today with your current environment.
- What is your timeline for implementing a solution?
- Do you have funding(budget) in place?
- What metrics are your responsible for?
- What are the current roadblocks your organization faces to implementing a solution.





Identifying and Qualifying the Opportunity

What is a Sales Opportunity and how to Qualify one.

Identifying the Opportunity



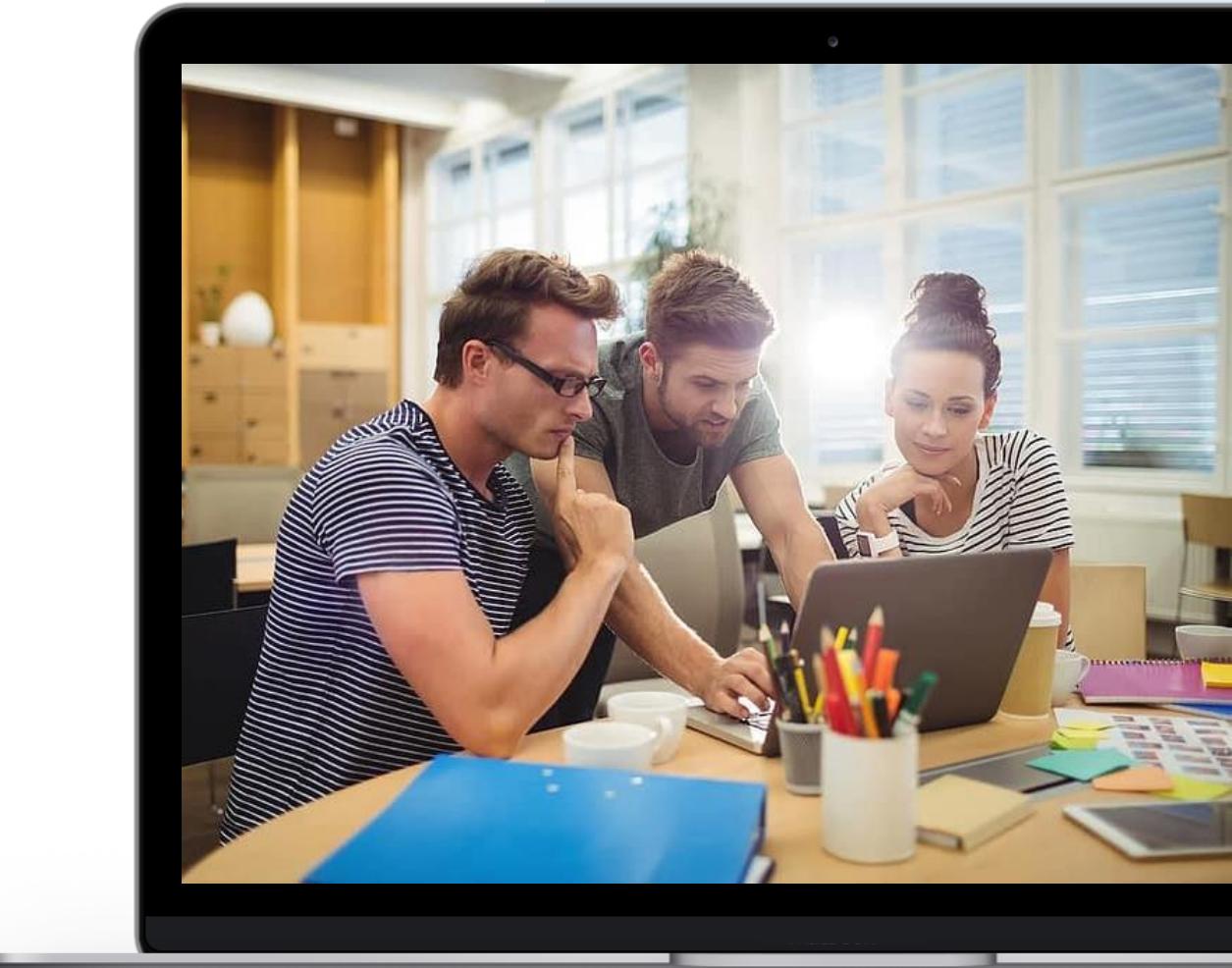
What is a Sales Opportunity Analysis?

- Sales Opportunity Analysis (SOA)** is focused on “evaluating” each opportunity based on customer fit, market size, and competition criteria.
- Every organization has their own unique approach to analyzing opportunities and what metrics are used.
- Sales Qualified Opportunity (SQO)** – demonstrates interest in further activities.
- BANT Framework**

Identifying the Opportunity

Qualification Process

- Lead** – Unqualified opportunity
- Prospect** – Qualified opportunity
- Sales Opportunity** – Interest to buy



Identify and Qualifying- BANT Framework

B

Does the customer have a budget? (Approval)

A

Does the contact have the authority for the approval?

N

Does the company have a need for the solution? (Problem identified)

T

Does the customer have a timeline set for the project?





Create that Win-Win Situation

Mutual gains thru negotiation and value

Win-Win Situations

What is a Win-Win situation?

- ❑ “**Win-Win**” situations occur when parties work together to meet interests and ensure value creation for both parties.
- ❑ Customer gets what they want and need, and sales teams help them get what they needed.
- ❑ Cooperation and compromise are important components of a Win-Win situation.



Topic Discussion





Solution Selling Mindset

What is and how to have the Solution Selling Mindset?

Solution Selling Mindset

What is a Solution Selling Mindset?

- ❑ “**Solution Selling Mindset**” is a sales methodology sales teams consider the needs of their prospects and recommend products or services that can best solve their problems.
- ❑ Sales Teams and Systems Engineers should learn about the customers organization, industry, pain points and objectives to really bring solution selling to a new level.
- ❑ Not about selling “widgets” but about “solutions that provide value”



Ethical Considerations 3.4

Tested subject areas



Section 3.4 Lesson Overview

Ethical considerations in selling AI/ML solutions.

Promote responsible AI practices

Maintain client confidentiality and data privacy

Module Review Questions

Module Review Summary

Next Steps and Certification Process

Course Closeout



Module Review Summary

Short Summary of what we covered in this module



Module Review Summary

- **Customer management** is an important process in the sales cycle that incorporates systems, tools, and processes to develop and manage customer relationships and ensure customer success.
- **Customer acquisition** is the process of bringing new customers to your business and then converting them into paying customers.
- A **Trusted advisor** is an individual that works collaboratively with their clients as a strategic partner and who also has the customers best interests at heart.
- A **sales opportunity** is a qualified prospect that has a high likelihood of becoming a paying customer.
- A **business case (use case)** is a document that presents the costs, risks, and benefits of a particular initiative, justifies the investment, and pitches because decision-makers should approve of the recommendation.
- **Objection handling** is a critical response to a customer in a way that changes their mind or alleviates their concerns so the deal could proceed.
- **Know the 4Ps of No** - Personalization, Perceived Value, Performance Value, and Proof
- **Story telling** is a persuasive technique used by sales professionals to engage, educate, and convince potential customers by conveying information through compelling and relatable stories



Module Review Questions

Let's Test our knowledge



Module Review Questions

1. Story Telling is an important part of being a successful sales professional. When we are conveying a message to a potential customer what is the most important concern we should have?

- A. The message should have convincing data.
- B. The message should be relatable.
- C. The message should be monotone in structure.
- D. The message needs to be approved by the sales manager.



Module Review Questions

1. Story Telling is an important part of being a successful sales professional. When we are conveying a message to a potential customer what is the most important concern we should have?

- A. The message should have convincing data.
- B. The message should be relatable.
- C. The message should be monotone in structure.
- D. The message needs to be approved by the sales manager.



Module Review Questions

2. You have been working a great new role with a major cloud vendor and finally have completed your sales training. In the sales training you learned about the “4Ps of NO”.

Which of the following answers would be the correct 4Ps?

- A. Personalization, Perceived Value, Performance Value and Proof
- B. Perceived Value, Personalization, Priority and Preferential
- C. Performance Value, Perceived Value, Priority, and Presentation
- D. Proof, Priority, Presentation and Personalization



Module Review Questions

2. You have been working a great new role with a major cloud vendor and finally have completed your sales training. In the sales training you learned about the “4Ps of NO”.

Which of the following answers would be the correct 4Ps?

- A. Personalization, Perceived Value, Performance Value and Proof
- B. Perceived Value, Personalization, Priority and Preferential
- C. Performance Value, Perceived Value, Priority, and Presentation
- D. Proof, Priority, Presentation and Personalization



Module Review Questions

3. Becoming a trusted advisor is an important milestone in your sales career. Which of the following answers would not be correct about being a trusted advisor?

- A. A Trusted Advisor wants the customer to succeed
- B. Understand the customer's mission statement.
- C. Offer value by providing direct and actionable insights
- D. Thinks about only short-term concerns to ensure customer acquisition
- E. Focus on meeting or exceeding customer requirements



Module Review Questions

3. Becoming a trusted advisor is an important milestone in your sales career. Which of the following answers would not be correct about being a trusted advisor?

- A. A Trusted Advisor wants the customer to succeed
- B. Understand the customer's mission statement.
- C. Offer value by providing direct and actionable insights
- D. **Thinks about only short-term concerns to ensure customer acquisition**
- E. Focus on meeting or exceeding customer requirements



Module Review Questions

- 4. Which step of the story telling process would you craft a story and then provide examples that the customer would understand?**
- A. Hook
 - B. Line
 - C. Sinker
 - D. Net
 - E. Both Net and Sinker



Module Review Questions

4. Which step of the story telling process would you craft a story and then provide examples that the customer would understand?

- A. Hook
- B. Line
- C. Sinker
- D. Net
- E. Both Net and Sinker



Module Review Questions

5. Your sales director has asked you to get on a call to scope out a potential customer for a cloud migration to your cloud service. The account executive is fairly new to the organization, so the sales director wanted your opinion on how the AE has handled the call.

What part of the BANT framework would the AE likely want to discover the approver of the budget for the cloud migration?

- A. Budget
- B. Authority
- C. Need
- D. Timing



Module Review Questions

5. Your sales director has asked you to get on a call to scope out a potential customer for a cloud migration to your cloud service. The account executive is fairly new to the organization, so the sales director wanted your opinion on how the AE has handled the call.

What part of the BANT framework would the AE likely want to discover the approver of the budget for the cloud migration?

- A. Budget
- B. Authority
- C. Need
- D. Timing





Certified

Certified Cloud AI
Solutions Architect (CCASA)

2025

Next Steps and Certification Process

How to become a certified professional

CCASA Courses



- 01 Module 1 - Domain 1 – AI/ML Fundamentals (Course 1)
- 02 Module 2 - Domain 2 – Solutions Development (Course 2)
- 03 Module 3 - Domain 3 – Customer Relationship Mgmt (Course 3)
- 04 Optional Practice Question Pool

Resources and Course Closeout

Thanks for Joining!



Additional Certifications

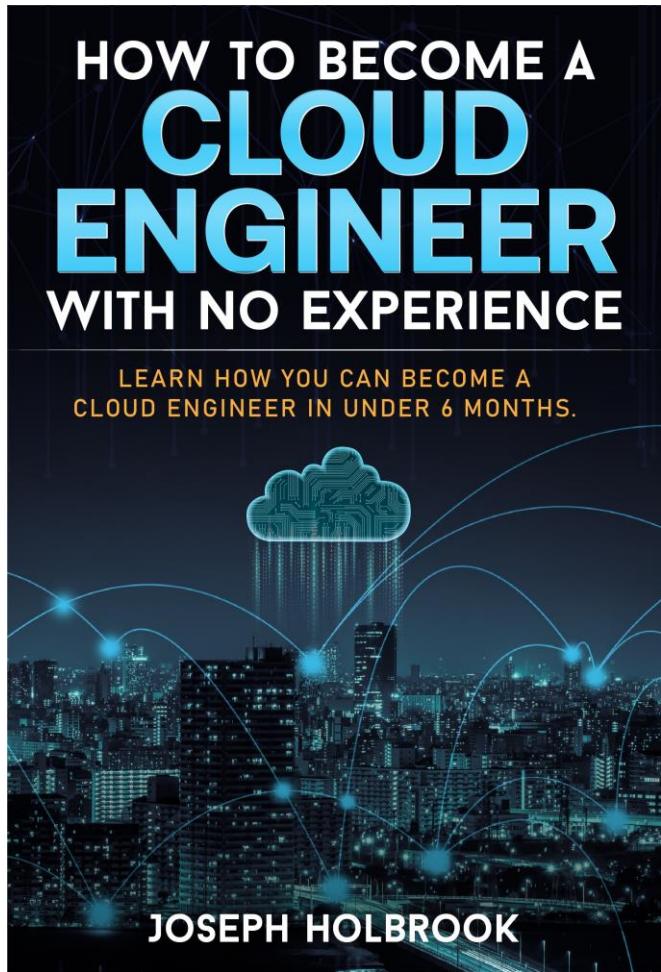


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GOOGLE CLOUD ASSOCIATE CLOUD ENGINEER EXAM

All in One Guide - Get Certified Efficiently in Google Cloud!



FINOPS CERTIFIED PRACTITIONER

50 Practice Questions with Answers/Explanations



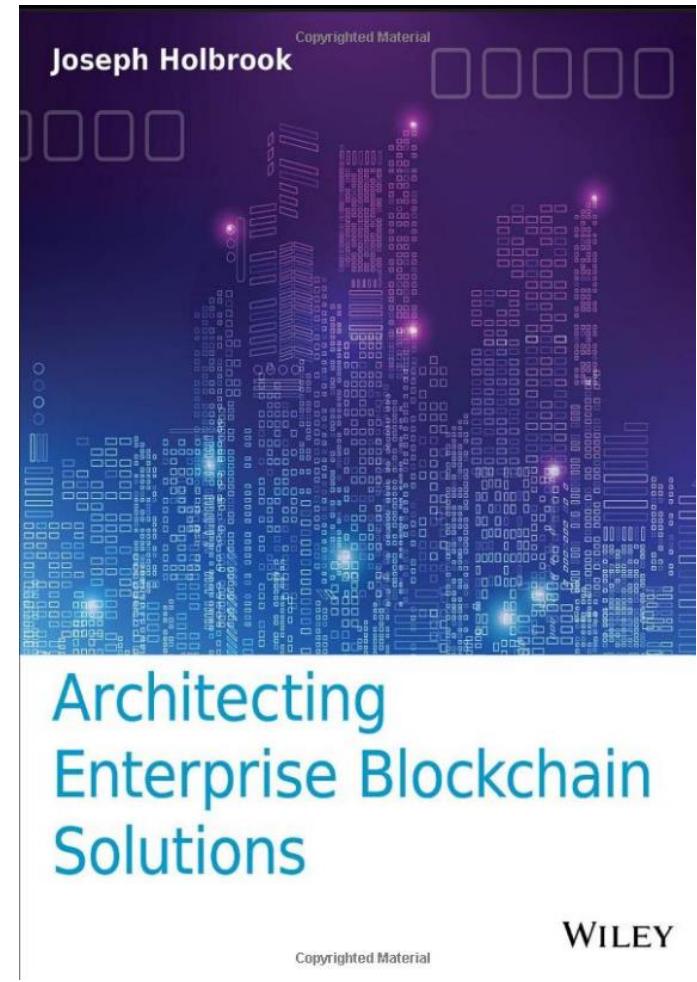
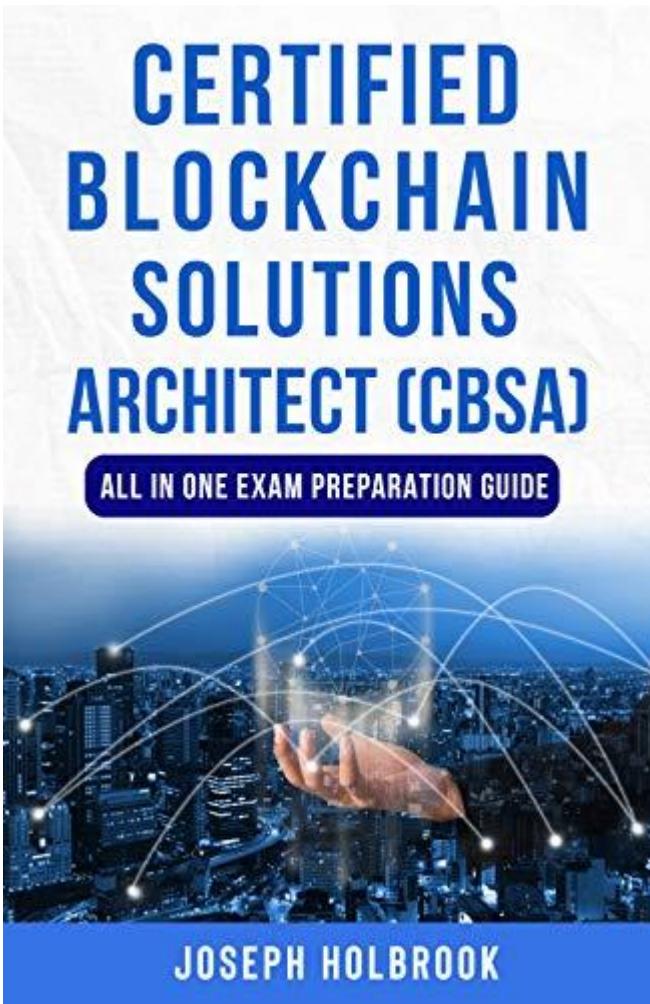
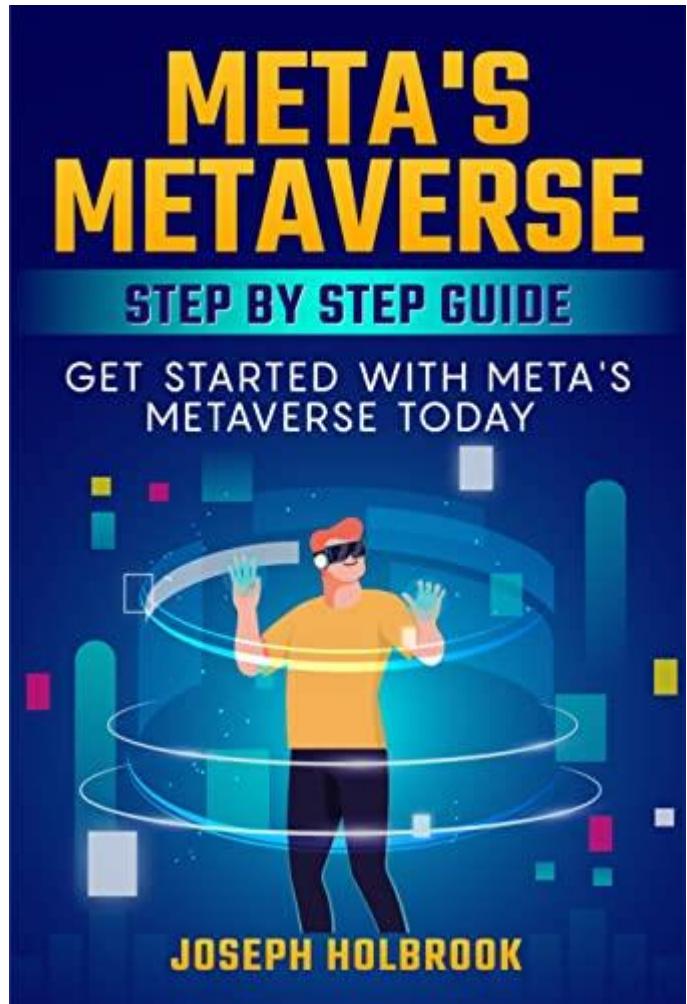
Prepare efficiently for the FinOps Certification

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Interview Coaching and Enablement

Get ready to interview and get the offer.

Cloud InterviewACE Program Overview

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Course Closeout

Thank you for joining the course.

I wish you much success in your career.

Please reach out if I can be of assistance.

