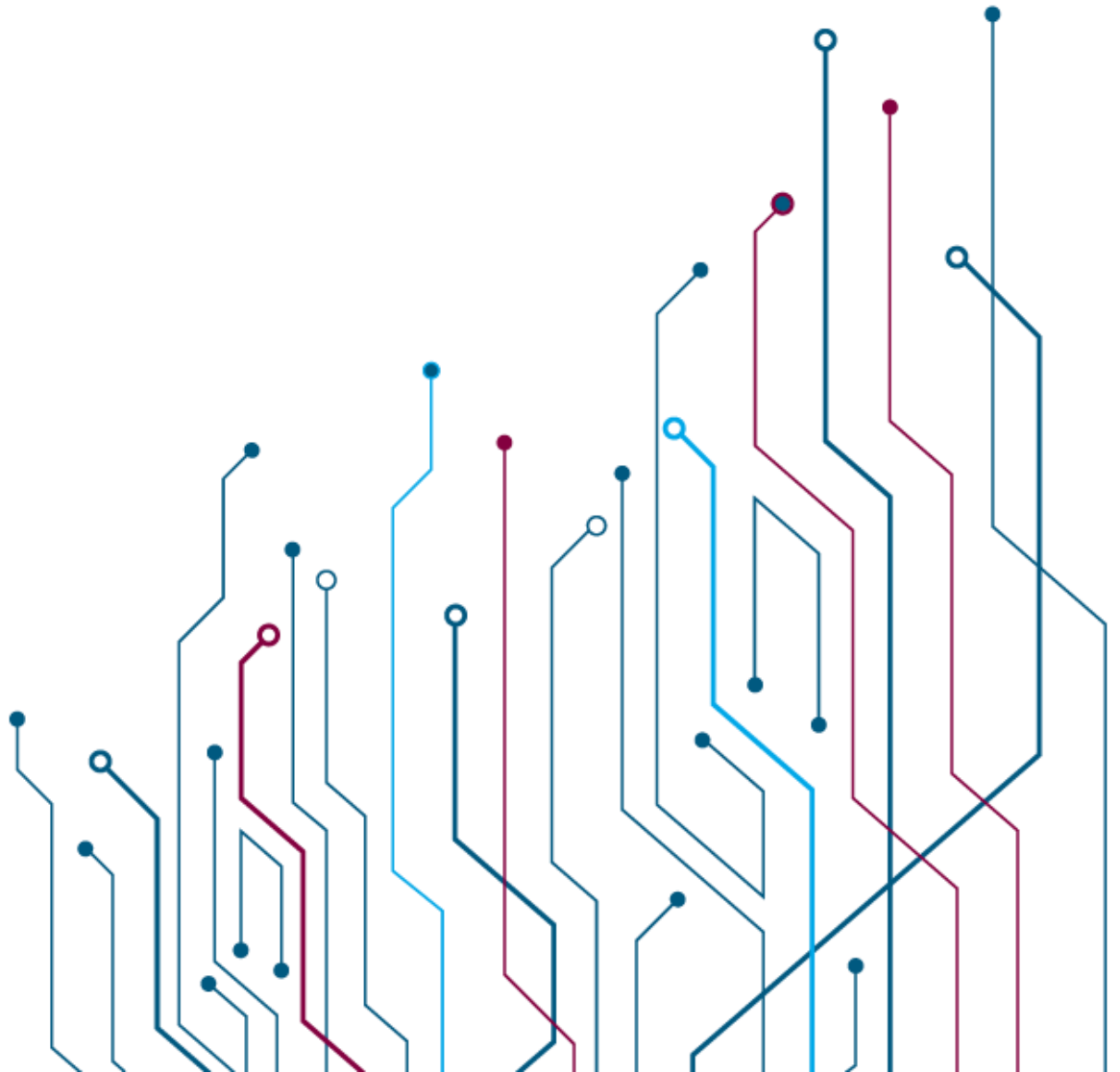




# Information and Data Management – Strategies and Solutions

The Futurum Group Education



## Course Overview

Data has value. For companies and organizations, data is the lifeblood for operation. The data is used in processing required to yield information, make decisions, conduct business, and produce results. Data also has value when further analysis yields immediate, important actions to take and for longer term strategic decisions.

We are now entering into a period where Artificial Intelligence is dominating the discussion for everything from online activity to advances in research to pervasive questioning of truthful information. AI is driven by data from disparate sources. And, a very large amount of information. This has made the stewardship of data even more critical.

We are also faced with an increasing number and an increasingly complex series of attacks, with most demanding a ransom to restore data or avoid disclosing information. The security and cyber resilience requirements for managing information continue to increase and change as attacks adapt to protections put in place.

Storing, managing, and accessing information is the most critical purpose for information technology professionals and technologists who deliver those capabilities. This importance has created a discipline for information storage and management. The discipline continues to see technology advances and changes in demands resulting in a continuous learning curve for practitioners.

This education course will cover the strategies and directions for managing information and explain the technologies used. How the technologies are delivered as solutions by vendor companies must be understood to make informed decisions. Ultimately, the decisions must have a sound economic basis and the methods to approach an economic analysis will be explained as well.

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## Section 1: Industry Overview

Information Technology or IT continues to evolve with new applications and new technology. Changes are ongoing but there are some significant developments that change how IT operates. Use of public clouds, exploiting new technology, virtual machines, and now containers have all made impacts. While these will continue and some potential new developments may cause even greater change, it is useful to understand both what is dominating and what direction IT organizations are headed.

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## Section 2: Technology Developments

New solutions and technologies continue to be offered by vendors and promoted as a transformative change in the industry. Some are significant while others may not have the

significance their promoters put forth in their messages. This section will look at the technology and usage and explain the significance without the hype associated. A clear view of the trends and developments enable decisions that contribute to the long-term strategy and not a detour that may be less than effective. Technology developments will explanations about:

CXL – Compute Express Link

Quantum Safe Encryption

DPU's

DNA Storage

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### Section 3: Developments in IT Infrastructure

Enterprise IT organizations have many challenges in meeting requirements to support their organization and operational units, which have increasing demands: capacity, performance, executive challenges to transform the operational service delivery, and economic pressure. The approaches used by most are to make incremental improvements with introduction of new technology and by starting a project that will transform IT. Many IT organizations are in the process of deploying a Hybrid Multi-Cloud Infrastructure for IT Transformation. As new developments have driven interest, most new hybrid multi-cloud infrastructure developments are now focused on container-based environments. The effort to move to containers in IT outside of developers is significant and complex, requiring new skills and understanding.

#### AI in IT

Artificial Intelligence is not only used in IT, providing data for use in AI/ML training and tuning is a growing activity. As foundation models move into IT for additive AI with private data, the tasks required will be new and require understanding as the technology for AI continues to evolve.

#### AI Data Platforms and AI/ML

One of the potentially most impactful is deploying AI capabilities to tune or train foundational models with private data. Private data is guarded carefully by an organization and how that is handled is being addressed with new solutions called AI Data Platform. A new approach to managing the information that feeds the AI/ML Frameworks is the Data Catalog. While still evolving, AI Data Platform functionality continues to expand with vendors offering solutions rather than 'build-it-yourself' approaches that have been the only means to date.

#### AIOps – Artificial Intelligence for Operations

Part of AI in IT is the opportunity to improve operations. Improvement may include more autonomic operation of individual systems and a collective operational change based on accumulated telemetry data.

## Trends in IT Infrastructure

Trends are an explanation of what are other organizations doing. Some may be exploitation of new technologies. Some may be best practices. This section will be an interactive discussion of what these trends are.

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## Section 4: Information Management

There are many different points for management of information. This section will explain what those management elements are and how they are related. Managing information encompasses many tools with overarching Multi-Cloud Data Management developing as the most complete approach for managing data that is spread across public clouds and on premises. This includes Data Protection and the mechanisms to protect and make data available with the recovery of data in case of failures. Part of overall Enterprise Data Management is about moving data to different types of storage (at different cost and performance characteristics) based on the business value of data. Covered areas include:

### Data Protection

Data protection is a wide-ranging area, beyond what was originally termed backup and restore. Topics covered in this section includes software, data protection systems, snapshots, and replication.

### Cyber Resilience – Protection and Recovery from Ransomware

The focus for IT is on ransomware because of the increasing number of high-profile attacks. Resilience includes prevention, detection, and recovery. This section will detail how to develop a strategy for recovery.

### Multi-cloud Data Management

Data no longer is captive in a single environment. It moves to different systems for a variety of reasons: testing, protection, cost of storing, etc. And, it moves off premises including to multiple public cloud locations. Managing across the locations where it may live is a growing demand that some vendors are attempting to address with new products and modification of existing products (including acquisitions). This section will discuss the need and the products that fit in this area.

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## Section 5: Information Storage Technologies

Developing a strategy for employing solutions for Information Storage and Management requires an understanding of underlying storage technologies. This section will delve into the technologies to create a common level of understanding for employing solutions.

### Global File Systems

Remote working has led to an increase in interest in Global File Systems. The solutions to provide access to files with centralized security and distributed data will be reviewed.

### Containers and Container Native Storage

Containers are inevitable. New application development is using containers. Most applications designed to work in hybrid cloud environments are container-based. AI tools are almost exclusively executed in a container environment. Understanding container environments and storage used for containers is becoming a pervasive requirement in IT.

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## Section 6: Information Storage Solutions

In providing block, file, and object access to storage systems, the major storage vendors have multiple solutions, some that are specific to a type of usage and some that provide multiple access types. Additionally, many of the vendors provide solutions that support access for special purposes such as a data protection target.

Considerations of storage solutions goes beyond a simple decision on which system to purchase. The selection is now a strategic decision where the system will be employed for an extensive period of time – a decade in the case of many of the solid-state systems – and the characteristics not only have operational impacts but differing economic value.

In this section, a variety of considerations will be covered:

Perpetual Upgrade Storage Programs

Ransomware Resiliency in Primary Storage

Choices for Access to Storage

Evaluating Storage Systems – What Is Important

Unified Storage Platform Considerations

Overview of Leading Systems

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## Section 7: Understanding Performance and Value

This section will explain testing of products to understand their real value. Performance and cost relationship examples will be shown. The types of standardized tests available will be discussed along with an explanation of what they really test.

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## Section 8: Consumption-Based Models – STaaS and Managed Services

Switching to an OPEX driven cost model has value for many IT operations. Vendors have different types of offerings that provide Storage as a Service. This section will review what the goals for STaaS are and the different offerings available as well as the financial offering including consumption-based charging. Managed services as an option for the aaS offering has also become interesting for some and will be discussed.

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## Section 9: Changing Roles and Responsibilities for IT Professionals

The perception of IT specialists has been changing for some time. They are seen by executives as administrators in very specific areas aligned to products such as storage systems or backup software and viewed as overhead where they would no longer be needed if the system went away. The issue is that the context of dealing with information asset is the value delivered by the IT professional is not understood because it has not been effectively communicated. This section will discuss the evolution and how the work of IT professionals has to be positioned correctly. This is important for the long-term success of IT and for the professionals in the organization.

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## Section 10: Considerations for Changing Vendors

Managing information requires an understanding of the financial considerations of different approaches and solutions. In this section, several topics will be presented to illustrate the methods to make informed evaluations with the economics applied with the perspective that data has a potentially long lifespan. Included will be specific examples used in decisions to be made.

Additionally, the financial considerations for justifying infrastructure and solutions for enterprises will be discussed. The considerations ultimately must show economic value and be presented in a complete fashion.

## Section 11: Vendor Discussion

The current and future direction of vendors will be discussed and what the implications may be for customers. This will be an interactive session, with discussion regarding the vendors and their directions.

## Section 12: Special Topics

At the start of the class, special requests will be entertained to add to the discussions. These special topics will be covered as time permits.