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Hybrid Infrastructure, Datacenter As a Service & Edge Datacenter

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What is a “Traditional” data center?

- At its simplest, a data center is a physical facility that organisations use to house their critical applications and data. A data center's design is based on a network of computing and storage resources that enable the delivery of shared applications and data



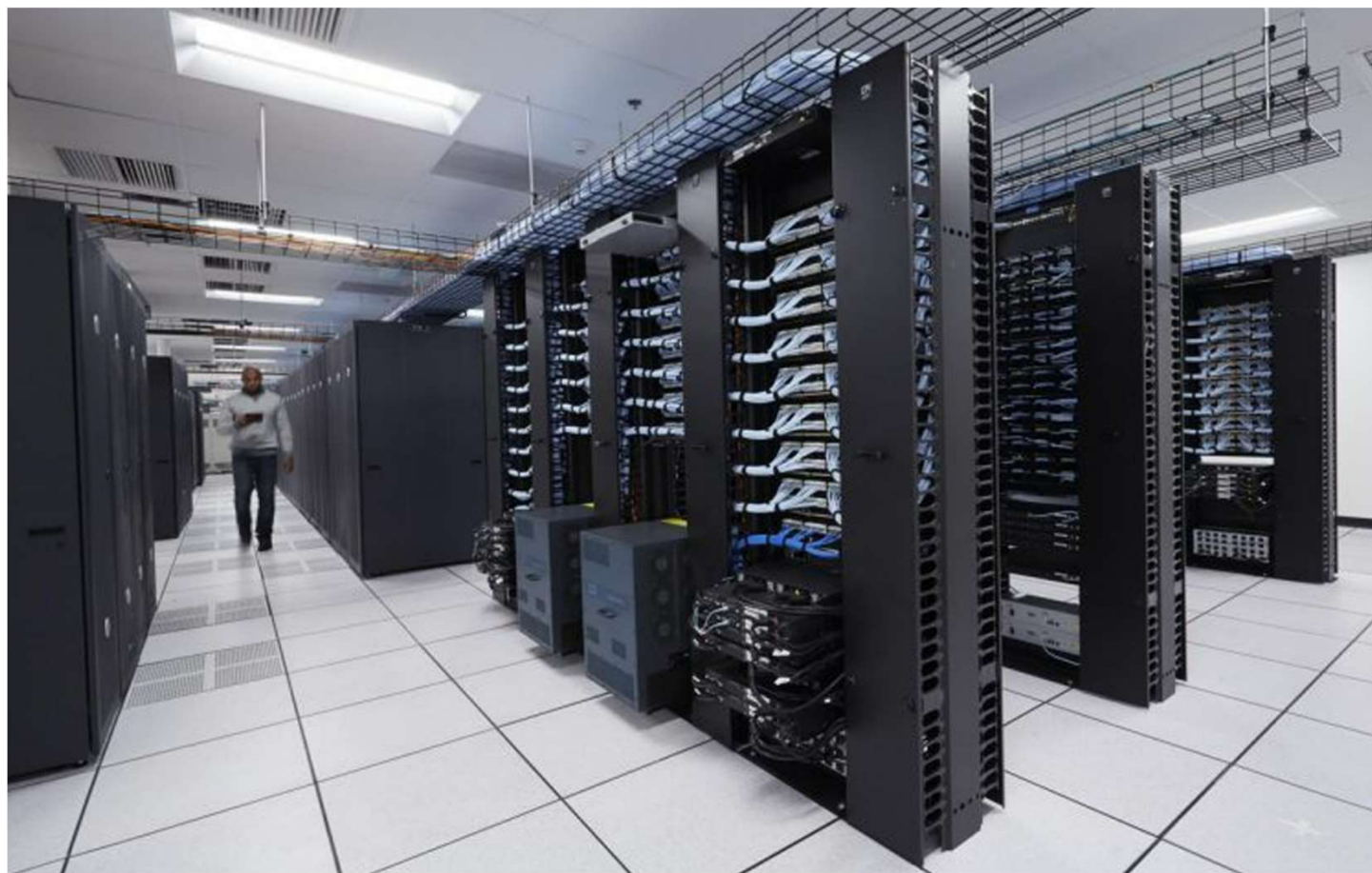
Why are data centers important to business?

Data centers are designed to support business applications that include:

- Email and file sharing
- Productivity applications
- Customer relationship management (CRM)
- Enterprise resource planning (ERP) and databases
- Big data, artificial intelligence, and machine learning
- Virtual desktops, communications and collaboration services
-and more

What are the core components of a data center?

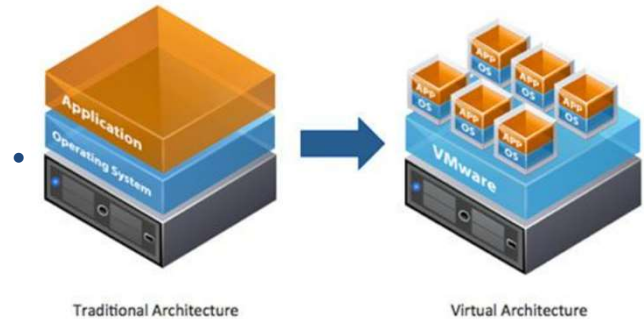
- Network infrastructure
- Storage infrastructure
- Computing resources
- Security
- Data center facilities



Infrastructure evolution: from mainframes to cloud applications

Computing infrastructure has experienced three macro waves of evolution over the last 65 years:

- The first wave saw the shift from proprietary mainframes to x86-based servers, based on-premises and managed by internal IT teams.



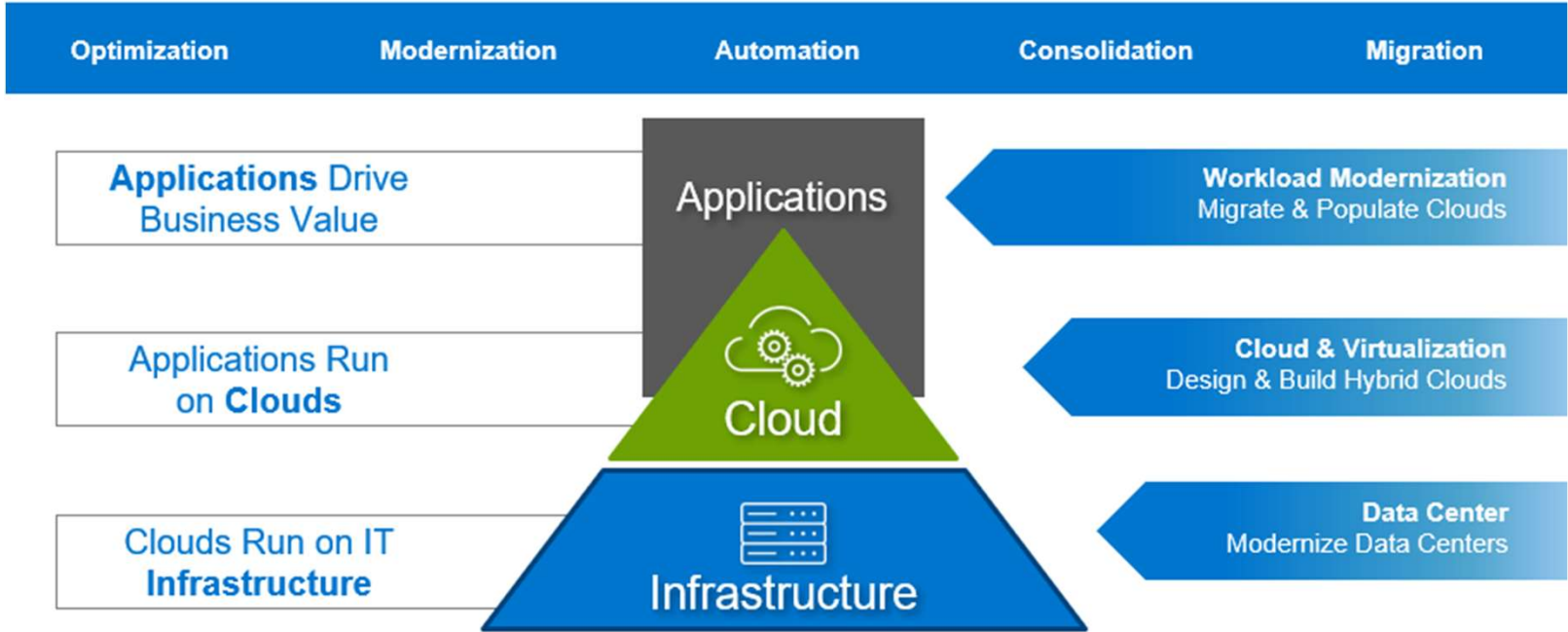
A second wave saw widespread virtualization of the infrastructure that supported applications. This allowed for improved use of resources and mobility of workloads across pools of physical infrastructure.

- The third wave finds us in the present, where we are seeing the move to cloud, hybrid cloud and cloud-native, edge.



What is data center transformation?

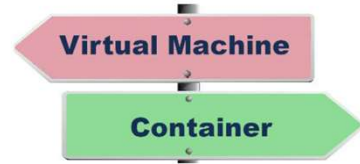
Data center transformation is a strategic move to replace outdated infrastructure to enable business growth and competitive advantage. With a modern data center, your IT organization can overcome the pitfalls on the road to digital transformation and deliver the agility, speed, and innovation required for success in the digital economy, across both private and public clouds.



Which Solution is Right for You?

When looking for the best deployment solution for your business, there's no wrong or correct answer between on-premise and cloud solutions. The most important thing is to consider the aspects of your organization and its needs. From there, you can adopt a design that satisfies your organization's needs most efficiently and cost-effectively.

**On-Premise
Data Centers**



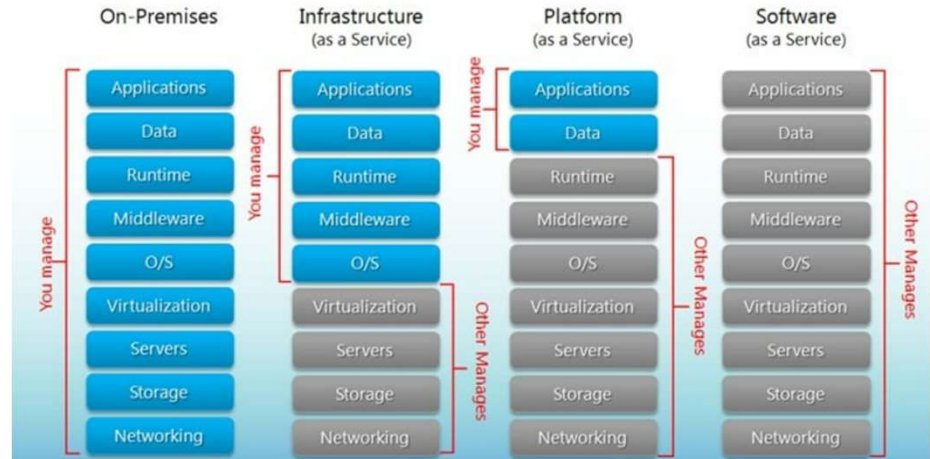
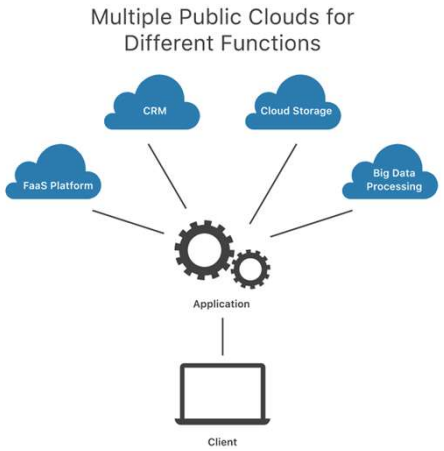
Hyper-Converged Infrastructure

Unified Management

Virtualization
Compute | Storage | Network

Server + Storage Network

Built on Industry-Standard Servers and Switches



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On-premise Data Center

With an on-premise solution, hardware and applications are stored at the organization's place of business or another location they choose, usually within a data center.

Despite all the enthusiasm for moving applications to the cloud, corporate data centers are neither dead nor dying. In fact, first-class data centers remain one of the keys to competitive advantage. There is tremendous value in keeping some applications and services running on-premises, even while moving others to the cloud. But even the best data center needs to change and evolve.



On-premise Data Center – Pros and Cons

Benefits:

1. The business controls the cost of the platform, with a one-off initial payment for hardware and equipment
2. The system is non-tenanted, providing more security management to assigned users
3. The owner has authority over the system configuration (hardware and software, updates or changes)
4. On-site resources remove the reliance of internet connectivity

Drawbacks:

1. Infrastructure requires a large capital outlay to begin with
2. The owner is solely responsible for the maintenance. This requires expertise
3. It can take much longer to implement an on-premise system
4. The model is inflexible for businesses which experience rapidly changing requirements due to fluctuating demand



Private Cloud

A private cloud consists of resources only used by one organization.

Private cloud is hosted on-premise on your data center, on an independent cloud provider's infrastructure, or rented infrastructure housed in an offsite data center



Private Cloud – Pros and Cons

Benefits:

- 1. Ability to customize your cloud environment to meet specific business needs and performances
- 2. High level of control and privacy since there's no sharing of resources
- 3. Highly scalable, unlike on-premise infrastructure
- 4. Data governance and data locality

Drawbacks:

- 1. Cost. A Private cloud model is more expensive
- 2. Maintenance
- 3. Deployment and Scalability



Public Cloud and Multi Cloud

In a public cloud environment, compute, storage and other infrastructure resources are provided as a service by an external provider.

A public cloud system is shared with other customers operating on a multitenancy basis, where two or more organizations are accessing the same resources.





Public Cloud - Pros and Cons

Benefits:

- 1. Quick and Easy Set Up
- 2. No maintenance - your service provider provides the maintenance.
- 3. Near-unlimited scalability - on-demand resources are available to meet your business needs.
- 4. High reliability - a vast network of servers ensures against failure.
- 5. Costs - no need to purchase hardware or software, and you pay only for the service you use.

Drawbacks:

- 1. Unpredictable costing models
- 2. Depending on the provider, you may not be able to examine the underlying hardware available.
- 3. Location
- 4. Connectivity needs to be carefully considered

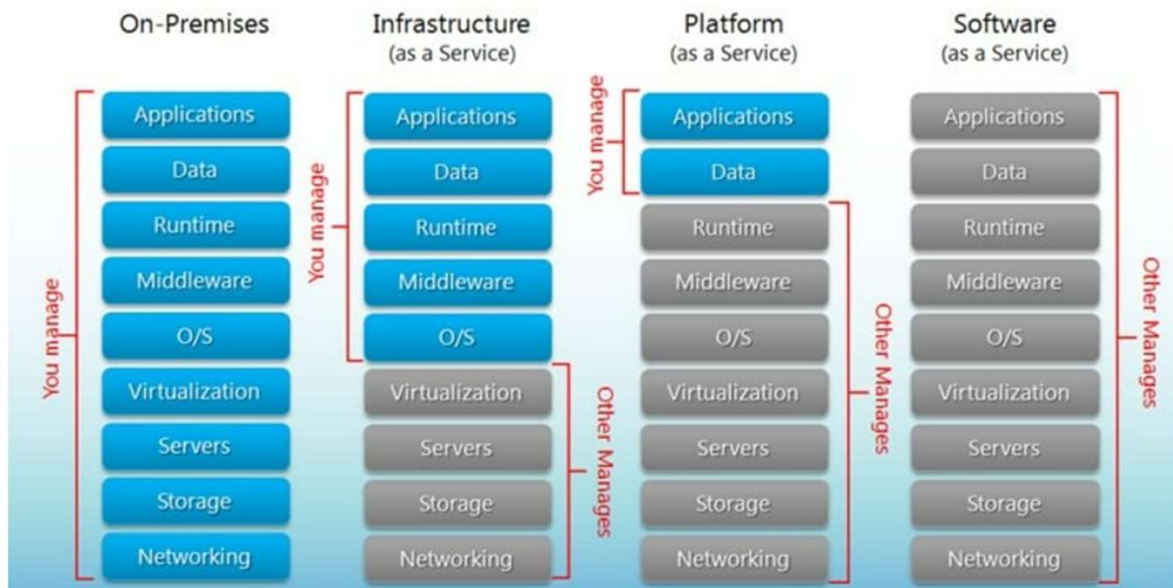


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Managed cloud

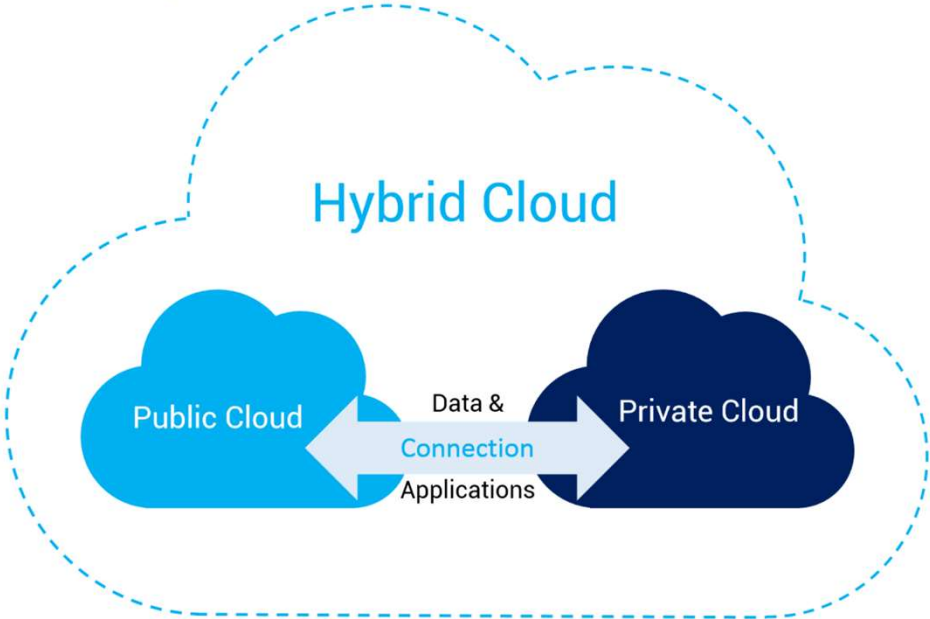
While public and private cloud platforms do not generally include support services for setting up or maintaining servers and applications that run in the cloud, managed cloud offerings offer this



Hybrid Cloud

A hybrid cloud architecture is one that combines the usage of a number of public and private cloud services with orchestration between the two platforms.

Often referred to as the “best of both worlds,” a hybrid solution allows companies to have control of on-premise hardware with the flexibility and scalability of the cloud.



Hybrid Cloud - Pros and Cons

Benefits:

1. It allows for the fully owned security of an on-premise or private cloud solution for sensitive data and operations, whilst still having the scalability option by having public cloud resources for those systems that need them

1. Hybrid solutions are also beneficial for disaster recovery plans, with the environment on a private server ready to deploy to public cloud services in the event of a crisis — securing business continuity

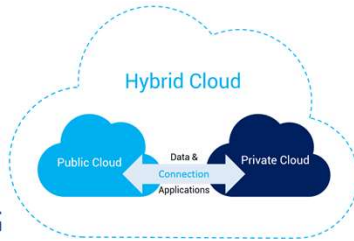
2. A hybrid approach can be the ideal model to test a full public cloud model safely, before workload is migrated full time

Drawbacks:

1. It can be costly to set-up, not just hardware costs for the on-premise server or private cloud solution, but also the time to implement and manage the system to ensure it is fit-for-purpose

2. Management overhead can increase whilst both types of environment are maintained

3. Infrastructure Compatibility



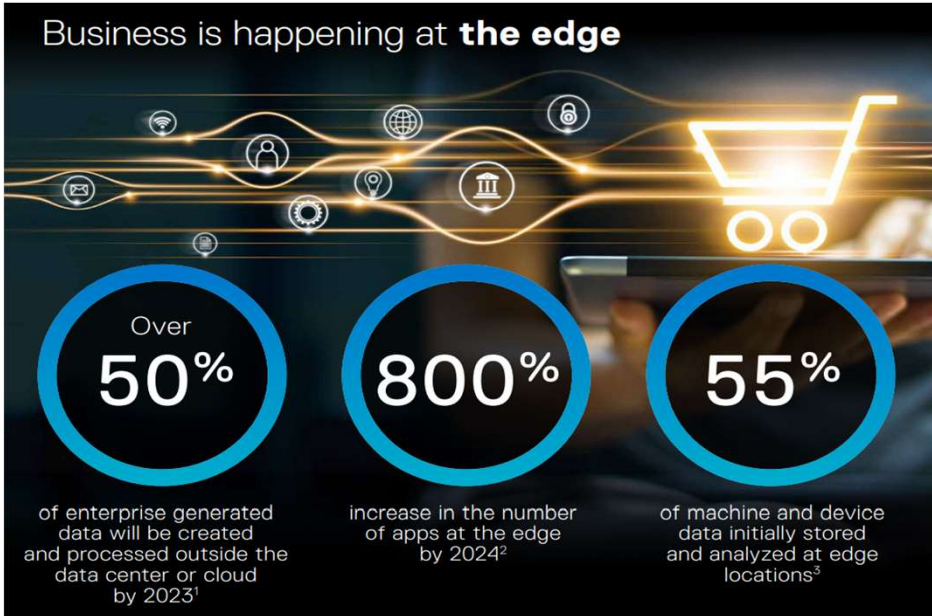
Edge Data Center

Installations at The Edge reduce use of the cloud by bringing data processing and storage closer to the processes and equipment generating and using it.

In an Edge computing architecture, critical data is processed at the point of origin via a server positioned in close proximity to the source, allowing for immediate access.

Data that is not as time-sensitive is sent to the cloud, physically storage, analysis, or compliance record-keeping.

Manufacturing facilities are one of the primary users of Edge. More and more of them are taking advantage of the Internet of Things (IoT) where equipment with sensors are connected to devices and relay data that's used to make more informed productivity and efficiency decisions.



The benefits of The Edge include:

1. **Reduced latency.** Data analysis performed at the very edge of where it's created minimizes latency and ensures faster response times. Edge computing also reduces the overall traffic loads of the organization, improving the performance of all its applications.
2. **Cost savings.** With an Edge deployment, data is prioritized at a local level, with less time-sensitive data being sent to the cloud and more critical data remaining at the Edge, reducing the costs of transferring and managing it.
3. **Reliability.** Many Edge users, like the Oil & Gas industry, operate in rural or remote areas where connection to the Internet is spotty at best. With an Edge deployment, though, devices store and process data locally, improving the reliability of the system by reduced dependence on the cloud.
4. **Scalability.** With the right IT enclosures scaling your Edge deployment becomes much easier.

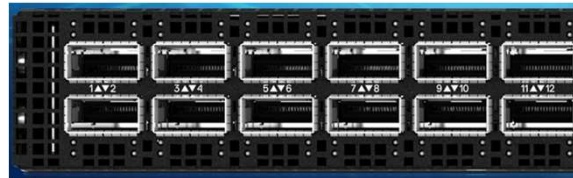


VMware Cloud Foundation on VxRail, a turnkey platform for running, managing, automating and securing hybrid cloud infrastructure. This jointly engineered HCI system enables organizations to run traditional workloads alongside cloud-native, container-based applications for consistent and seamless operations.



VMware Cloud on Dell Technologies, a fully managed Data Center-as-a-Service solution that delivers cloud-like ease of use for on-premises workloads. This solution also enables unparalleled consistency between local environments and public cloud environments.

Edge, Dell Technologies integrated hardware and software solutions that supports your edge computing goals



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SMS Engineering : The Route to the Modern Data Center



Strategize

- Assess your current state.
- Define your target state.
- Develop a phased road map for transformation across people, processes, and technology.

Implement

- Design and deploy technology solutions using proven best practices.
- Create custom integrations.

Operationalize

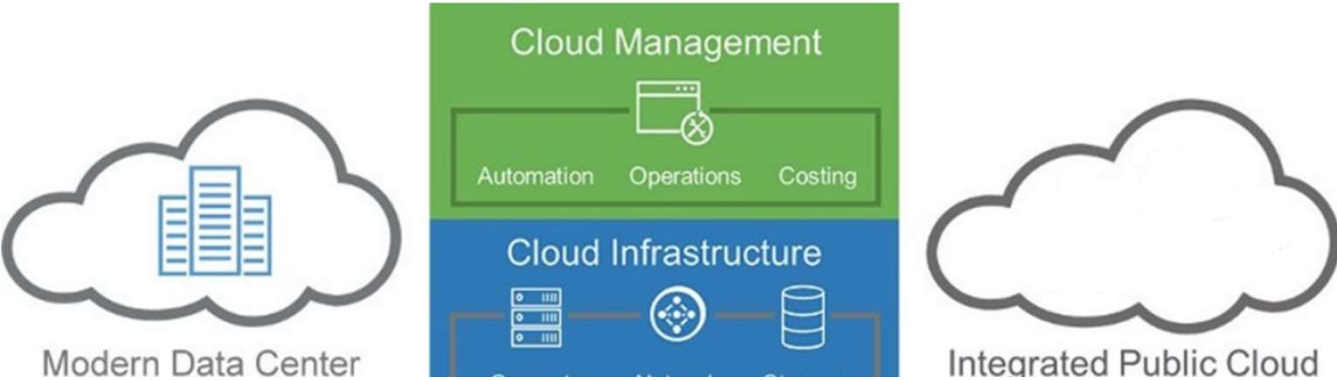
- Transform operational processes.
- Adjust organizational structures.
- Address internal culture.

Train

- Educate team members

Support

- Post Delivery Support



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Grazie

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