





# Accendi il potere dell'ibrido - Come migrare al cloud secondo le necessità aziendali 23 june 2021

**Andrea Grassi** 

Journalist Computerworld Italia, Quine Business Publisher/LSWR Group

Gianni Vagnoli

Senior Technical Sales Engineer, Finix Technology Solutions

Claudio Ricci

Pre-sales di ATF, Fujitsu partner

Federico Riboldi

Senior Field Marketing Manager – FINIX Technology Solutions







### FUJITSU – FINIX The STORY so FAR



- 1999 Siemens and Fujitsu joined their forces and this led to the founding of the Fujitsu Siemens Computers,
   manufacturer of IT technologies
- 2009 Fujitsu Technology Solutions is formed, 100% owned by Fujitsu, it became a reference player in the IT market for Products & Services
- 2019 the Marperger group takes over 100% of the share package of the Italian branch of Fujitsu, that became FINIX Technology Solutions
- TODAY FINIX is acting to be a hub of innovation for Digital Transformation supporting PA , large Enterprises and SMBs

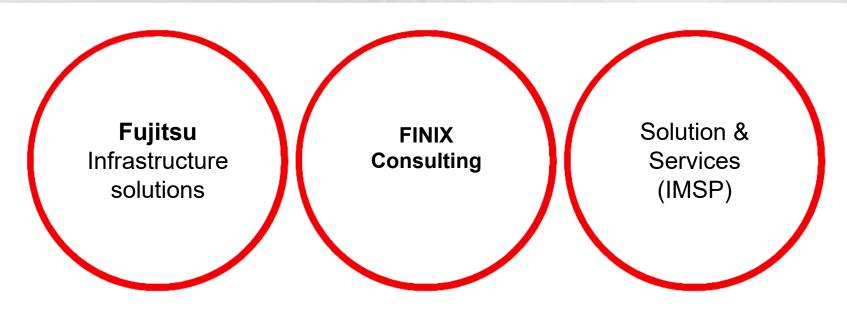
TECHNOLOGY SOLUTIONS





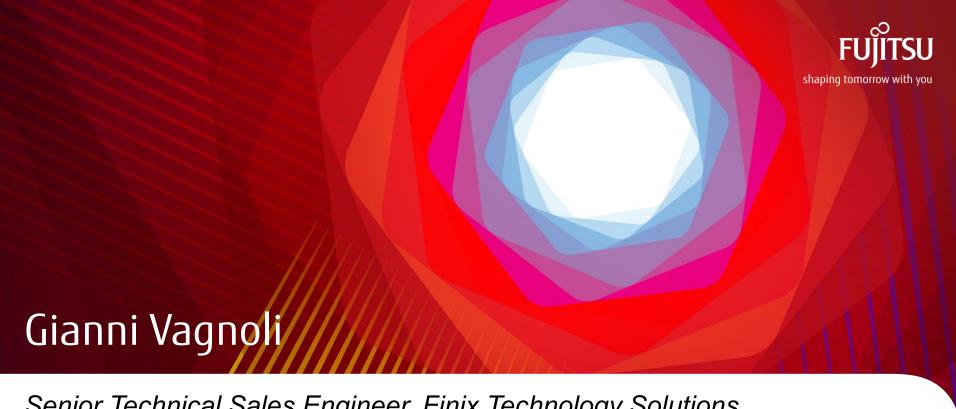
### FINIX portfolio





We enable the Digital Transformation of the Public Administration, of large and smaller companies in Italy, acting as an Innovative Managed Services Provider





Senior Technical Sales Engineer, Finix Technology Solutions



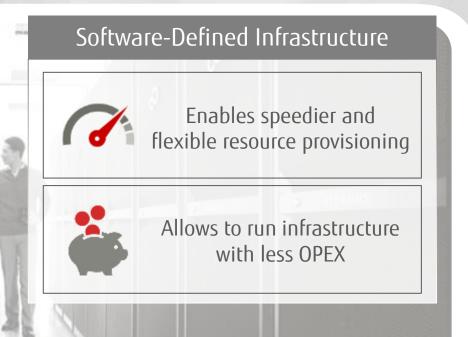




### Business needs meeting technology improvements FUJITSU







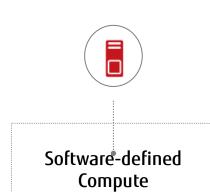
A software-defined infrastructure best supports a more business-centric IT approach





### Data Center Architecture in Transition





Server Virtualization



Software-defined Compute & Storage

Hyper-Converged IT



Software-defined Compute & Storage & Networking

Software Defined

Data Center



Software-defined Compute & Storage & Cloud

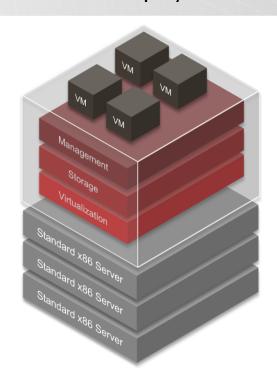
**Hybrid Cloud** 





# Focus on Hyper-Converged Infrastructure (HCI): The ideal deployment model for a SDDC





Infrastructure with a <u>modular and software-centric</u> architecture that tightly integrates compute, storage, networking and virtualization resources and other technologies in a single x86-based system

Consolidation - less components, space, energy and cooling

Simple management – less admin efforts, less required skill

Elastic, linear, non-disruptive scalability - grow as you go

High performance - low latency storage

Provides the flexibility and operational efficiency that business demands from IT









## Introducing PRIMEFLEX for Microsoft Azure Stack HCI





### Integrated system including ...

High-performance and energy-efficient Fujitsu hardware stack

Microsoft software-defined compute and storage

Range of certified server configurations

End-to-end infrastructure support services with single point of contact

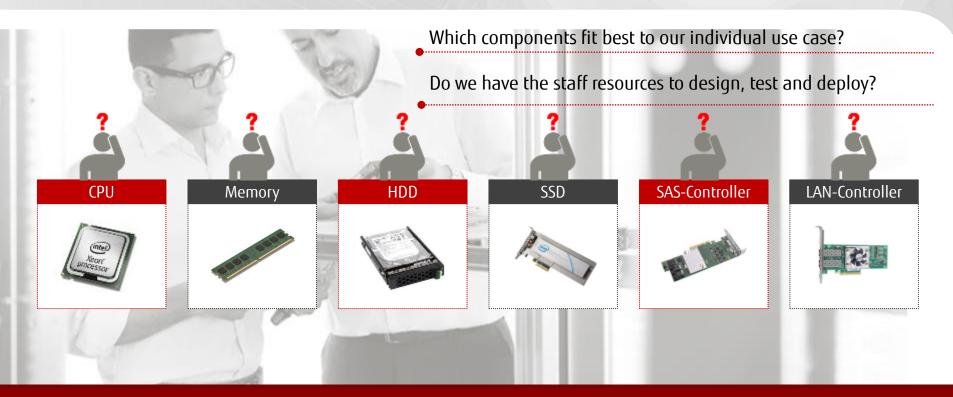
The fast track to your Microsoft hyper-converged infrastructure





# Challenges in building the hardware foundation for HCI





DIY (Do-it-Yourself) can be error-prone, time-consuming, risky, expensive

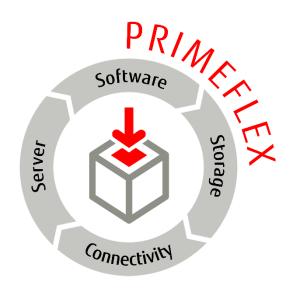






### Integrated Systems PRIMEFLEX: Benefits





#### **Drive Simplicity -**

Avoid trial and error testing

#### Save Time -

Reduce design, integration and deployment efforts

#### Reduce Risk -

Guarantee component compatibility and overall functionality

#### Increase Efficiency -

Reduce maintenance efforts

#### Save costs -

**CAPEX** and **OPEX** 

Reduce complexity, time, risk and costs - focus on business









### Cloud and HCI outlook



Businesses are increasingly hosting applications in the public cloud. And yet, datacenters are here to stay at many organizations, because cloud hosting isn't always the best option for all virtualized workloads.

To support on-premises workloads, many enterprises are embracing hyperconverged infrastructure (HCI), the modern way to deploy servers in datacenters and to remote offices and the edge.





84 percent

of organizations have a multi-cloud strategy.<sup>1</sup>



By 2023, an estimated

70 percent

of enterprises will run hyperconverged infrastructure vs. 30 percent in 2019.<sup>2</sup>

But does HCI by itself address all your problems?







### From HCl on-premise to HCl on Hybrid Cloud FUJITSU





In 2025, 1 in 5 enterprises will still be operating traditional datacenters.3 Adopting HCI to support your datacenter is the right move, because it can:



Lower costs



Simplify operations



Improve performance and availability

Wonderful! But you're still missing out on cloud-native capabilities, and managing your virtualized workloads is harder than it needs to be.







### Azure, Azure Stack Hub, Azure Stack HCI FUÏITSU



#### Azure

#### **Azure Stack Hub**

### Azure Stack HCI

Azure Portal, API, IaaS and PaaS, and cloud platform admin tools

Cloud compute, storage, and networking

Azure hardware

Hyperconverged compute, storage, and networking

Industry standard hardware



On-premises







### Azure Stack infrastructure



### **Azure Stack Portfolio**



### **Azure Stack Edge**

Machine learning at the edge Edge compute and IoT solutions Network data transfer to cloud

Single Server via Azure Portal

#### **Cloud Managed Edge**

Run VMs, containers, and Azure services at edge locations for your new IoT, AI, and business workloads, or migrate your existing workloads



#### Azure Stack HCI

Scalable virtualization and storage Remote branch office High-performance workloads

2+ Servers via Partner

#### Hyperconverged

Run virtual machines (VMs) on hyperconverged systems and use Windows Admin Center to connect to Azure for cloud services.



#### **Azure Stack Hub**

Connected and disconnected Data sovereignty Application modernization

1+ Racks via Hub Partner

### Cloud-native integrated system

Build and run cloud applications using consistent Azure services onpremises to meet regulatory or technical requirements.

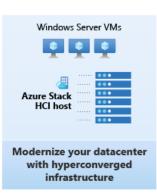


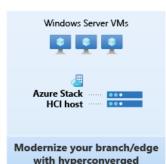




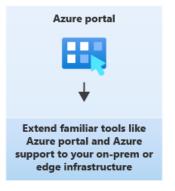
### Microsoft Azure Stack HCI vs Windows Server 2019







infrastructure



#### **Use Azure Stack HCI for:**

The best virtualization host to modernize your infrastructure, either for existing workloads in your core datacenter or emerging requirements for branch office and edge locations

Easy extensibility to the cloud, with a regular stream of innovations from your Azure subscription and a consistent set of tools and experiences

All the benefits of hyperconverged infrastructure: a simpler, more consolidated datacenter architecture with high-speed storage and networking

#### Use Windows Server 2019 for:

A guest operating system inside of virtual machines (VMs) or containers

As the runtime for a Windows application

To use one or more of the built-in server roles such as Active Directory, file services, DNS, DHCP, or Internet Information Services (IIS)

As a traditional server, such as a bare-metal domain controller or SQL Server installation

For traditional infrastructure such as VMs connected to Fibre Channel SAN storage

Windows Server 2019



Run Windows Server on baremetal hardware for traditional scenarios

Windows Server VMs





Run Windows Server on top of a public cloud like Azure

Windows Server VMs







Run Windows Server on top of on-prem infrastructure like Azure Stack HCI





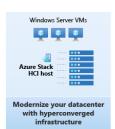




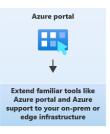
### Microsoft Windows Server 2019 vs Azure Stack HCI



Compare technical features					
Attribute	Azure Stack HCI	Windows Server 2019			
Core Hyper-V	Yes	Yes			
Core Storage Spaces Direct	Yes	Yes			
Core SDN	Yes	<u>Yes</u>			
Stretch clustering for disaster recovery	Yes	-			
4-5x faster Storage Spaces repairs	Yes	-			
Integrated driver and firmware updates	Yes (Integrated Systems only)	-			
Guided deployment	Yes	Yes ( By Fujitsu R.A. )			



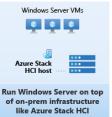








Windows Server VMs











### When to Use Azure Stack HCI













Branch office and edge

Virtual desktop infrastructure High-performance SQL Server

Trusted enterprise virtualization

Scale-out storage

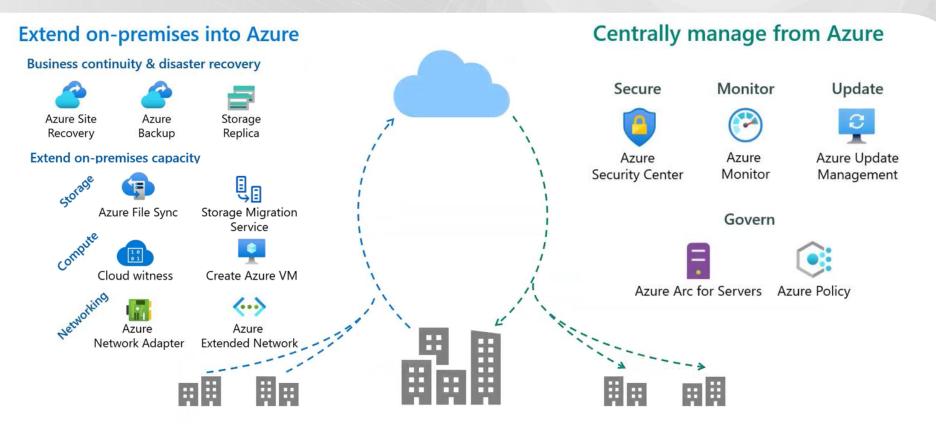






### Azure Extend HCI on-premises





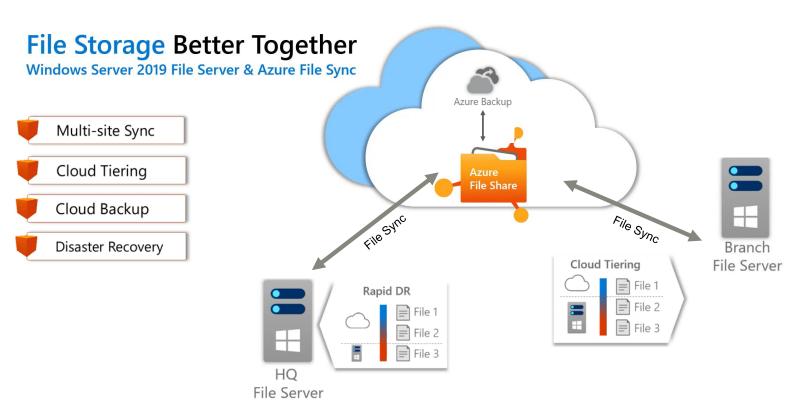






### Fujitsu & Azure File Sync





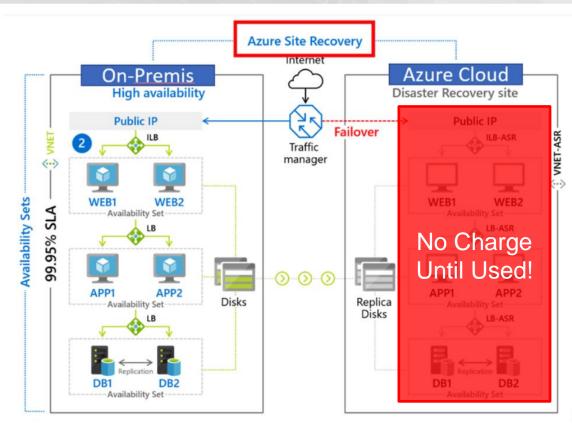






### Azure Site Recovery oveview











### 8 reasons to invest in Microsoft Azure Stack HCI FUÏTSU





#### Get started FAST-

From running OS deploy cluster in under 15 minutes



#### Store efficiently-

Get 10x more usable storage for free with deduplication and compression



#### **Unrivaled Performance –**

150K+ IOPS per server with micro-second latency



#### Save costs -

Reduce storage TCO by up to 50% versus traditional approaches



#### Mitigate risk-

Built-in resiliency for multiple component failures – even in 2-node deployments



#### Scale to size –

Start small with 2 servers and go up to 16 servers and 4 PB of raw storage



#### Simplify management –

New purpose-built management tool for Windows Server - Windows Admin Center



### Simplify path to hybrid IT –

Seamlessly connect to Azure cloud to extend your onpremises deployment









### PRIMEFLEX for Azure Stack HCI





Azure Stack HCI is built on Microsoft Hyper-V, the same hypervisor that powers Microsoft Azure, to deliver efficient server virtualization.



Azure Stack HCI comes with Storage Spaces Direct (SDS), which consolidates all local drives in the infrastructure—whether solid-state devices (SSDs) or hard-disk drives (HDDs)—into a pool of software-defined storage (SDS) that is both fast and resilient.



A third element is Software Defined Networking (SDN), which enables you to centrally create, configure, and manage virtual network devices such as routers, switches, and gateways in your datacenter. As a result, you gain productivity and reduce infrastructure costs.



PRIMEFLEX for Microsoft Azure Stack HCI is a validated node hardware from Fujitsu, certified by Microsoft. It's the easiest way to extend your on-premises datacenter to the cloud with Azure Stack HCI.



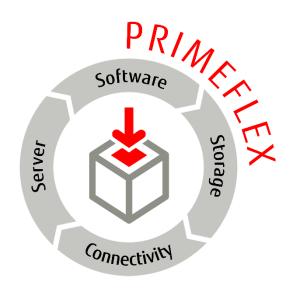
Windows Server 2019: The operating system that bridges on-premises and cloud.





### Integrated Systems PRIMEFLEX: Benefits





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### Fujitsu Ref. Architecture VBS & VDI for MASHCI FUJITSU

Microsoft Azure



http://azure.com/hci



http://azure.com/hci

#### AZURE STACK HCI: VIRTUAL DESKTOP INFRASTRUCTURE

#### AZURE STACK HCI: TRUSTED ENTERPRISE VIRTUALIZATION

#### Overview of Trusted enterprise virtualization scenario Virtualization-based security (VBS) is a key component of the security

investments in Azure Stack HCI to protect hosts and virtual machines from security threats.

For example, the Security Technical Implementation Guide (STIG) is published as a tool to improve the security of Department of Defense (DoD) information systems, and lists VBS and hypervisor-protected-code-integrity (HVCI) as general security requirements. It is imperative to use host hardware that is VBS and HVCI enabled, in order for the protected workloads on virtual machines to fulfil their security promise because protection of virtual machines is not guaranteed on a compromised host.



VBS uses hardware virtualization features to create and isolate a secure region of memory from the normal operating system. Windows can use this "virtual secure mode" to host a number of security solutions, providing them with greatly increased protection from vulnerabilities in the operating system, and preventing the use of malicious exploits which attempt to defeat protections.

VBS uses the Windows hypervisor to create this "virtual secure mode", and to enforce restrictions which protect vital system and operating system resources, or to protect security assets such as authenticated user credentials. With the increased protections offered by VBS, even if malware gains access to the operating system kernel the possible exploits can be greatly limited and contained, because the hypervisor can prevent the malware from executing code or accessing platform



#### How to deploy VBS and HVCI-enabled Azure Stack HCI

1. Plan Hardware Deployment

All the Azure Stack HCI solutions by Fujitsu are certified for the Hardware Assurance Additional Qualification, which tests for all the functionality needed for VBS. However, VBS and HVCI are not automatically enabled in Azure Stack HCI and Step 2. will guide you on how to enable them.

Warning: Hypervisor-protected code integrity (HVCI) may be incompatible with devices not listed in the Azure Stack HCI catalog. Microsoft strongly recommends using an Azure Stack HCI validated solution from our hardware partners for the Trusted enterprise virtualization scenario.

Fujitsu recommends the PRIMERGY TX1330 M4 tower server system as the best fit for the trusted enterprise virtualization on Azure Stack HCI scenario. Please see below the configuration options that have been certified according to the Azure Stack HCI program.



Hybrid: SS	D+HDD		
Server		PRIMERGY TX1330 M4(3.5")	
Scalability		2 to 4nodes	
CPU		1x Intel Xeon E-2124 or better (4-6cores)	
Memory		64GB	
Drives	Cache	2-6x3.5* SSD SAS/SATA (960 GB per node or higher)	
	Capacity	4-10x 3.5° SSD SAS/SATA (4.0TB per node or higher)	
Network		1x PLAN EP MCX4-LX 25Gb 2p SFP28 LP	
RDMA / TPM 2.0		yes / yes	
НВА		Fujitsu PSAS CP400i SAS	

#### How to deploy VDI on Azure Stack HCI

1. Supported Configurations Fujitsu recommends the 2U dual-socket PRIMERGY RX2540 M5 rack server system as the best fit for the virtual desktop infrastructure scenario. Please see below the configuration options that have been certified according to the Azure Stack HCI

Туре		Hybrid: SSD+HDD	All-Flash: All-SSD	All-Flash: NVMe+SSD
Server		PRIMERGY RX2540 M5(2.5" or 3.5")	PRIMERGY RX2540 M5(2.5")	
Scalabili	ty		2 to 16 nodes	
CPU		2x Intel Xeon Silver 4208 or better (16-56 cores)		ores)
Memory			64GB to 3TB	
Drives	Cache	2-12x 2 .5" or 2-6x 3.5" SSD SAS/ SATA (800 GB per node or higher)	-	2-4x 2.5" NVMe (3.2 TB per node or higher)
	Capacity	4-22x 2.5 " or 4-10x 3.5" HDD SAS/SATA (2.4 TB per node or higher)	4-24x 2.5" SSD SAS/SATA (1.92TB per node or higher)	4-24x 2.5" SSD SAS/SATA (1.92TB per node or higher)
Network		2x PLAN EP QL41xxx	2x PLAN EP MCX4-LX 25Gb 2p SFP28 LP	
RDMA /	IA / TPM 2.0 yes / yes			
НВА	BA Fuiltsu PSAS CP400i SAS			

#### www.fuiitsu.com/global/pf4ashci

Step by Step guide to deploy Azure Stack HCL. Also install Windows Admin Center (WAC) for managing Azure Stack HCl.

From Windows Admin Center (WAC), set up Azure Update Management can quickly assess the status of available updates, schedule installation of required updates, and review deployment results to verify updates that apply successfully.





- Additionally, you can set up additional Azure hybrid services such as Backup, File Sync, Site Recovery, Point-to-Site VPN, Update Management, and Security Center in WAC.
- 3. Enable VDI support









Step 1: Hardware and OS configuration for Azure Kubernetes Service on Azure Stack HCI Fullbur recommends the 2U dual socket PRIMERGY RX2540 M5 rack server system as the best 5t for the Azure Kubernetes

Service on Azure Stack HCl scenario. Please see below the configuration options that have been certified according to the

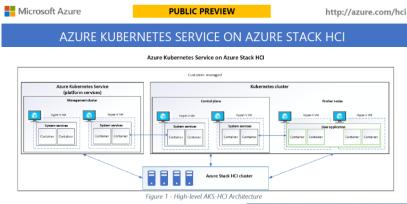
### Fujitsu Ref. Architecture AKS & SQL for MASHCI FUJITSU

How to deploy Microsoft SQL Server on Azure Stack HCI

Fuittu recommends the 2U dual-socket PRIMIRGY RX2540 M5 rack server system as the best fit for the High-performance

Microsoft SQL Server scenario. Please see below the configuration options that have been certified according to the Azure







FUÏTSU



http://azure.com/hci

#### AZURE STACK HCI: HIGH-PERFORMANCE MICROSOFT SQL SERVER

Step by Step guide to deploy Azure Stack HCI. Install Windows Admin Center (WAC) for managing Azure Stack HCI.

- 2. Set up Microsoft SQL Server on Azure Stack HCI Set up Windows Server or Linux VM
  - a. Install SOL Server on Linux
  - b. Install SQL Server on Windows
- 3. Monitoring and performance tuning

To ensure performance and health of your Microsoft SQL Server instances on Azure Stack HCI, it is important that appropriate monitoring and tuning is put in place. Additional SQL Server database engine tutorials are included here. For tuning SQL Server 2016/2017 for high performance, the following recommended practices are provided.

4. High Availability (HA)

Azure Stack HCI leverages Windows Server Failover Clustering (WSFC) and can be utilized to support Microsoft SQL Server running in VMs (designed to help with hardware failure). Microsoft SQL Server also offers Always On availability groups (AG) which provides database-level high availability and is designed to help with application and software faults. In addition to WSFC and AG, Azure Stack HCI can also leverage Always On Failover Cluster Instance (FCI) based on using Storage Spaces <u>Direct</u> technology for shared storage. All of these options can leverage the Microsoft Azure <u>Cloud witness</u> for quorum control. It is recommended that cluster AntiAffinity rules in WSFC be leveraged for the VMs to be placed on different physical nodes in order to maintain uptime for SQL Server in the event of host failures when you configure Always On availability groups.

5. Set up Azure hybrid services

Azure Site Recovery offers business continuity and disaster recovery (BCDR) strategy. Set up disaster recovery for SQL Server allows organizations to protect the SQL Server back end of an application to help keep your data safe, and your apps and workloads online, when planned and unplanned outages occur.

Azure Backup supports backing up and restoring Microsoft SQL Server with application consistency. Install Azure Backup Server to start backup of your on-prem SQL data.

Alternatively, you can also leverage Azure Blob Storage service for SQL Server to backup and restore to Azure Blob Storage service. This is suitable for off-site archiving. To manage the Azure Blob Storage backups, you can leverage the Managed SOL Backup feature included in Microsoft SOL Server.

In addition to the backup scenario, you can setup other database services that Microsoft SQL Server (Microsoft SQL Server 2016/2017/2019) offers, connecting to Azure services such as (but not limited to) Azure Data Factory, and Azure Feature Pack for Integration Services (SSIS)







RDMA / TPM 2.0

### Why Fujitsu for your Microsoft HCl project





#### Fujitsu Server PRIMERGY

Most complete x86-based server portfolio providing excellent virtualization performance and energy-efficiency



#### **Fujitsu Data Protection Appliances**

Broad range of backup and archiving solutions that perfectly integrate with all PRIMEFLEX systems



### Fujitsu Infrastructure Manager

Converged, unified management for simplified IT operations



### Fujitsu license consulting & agreement optimization

Helps maximize investments in MS SW, contain costs and keep compliance



### Fujitsu Infrastructure Support Services

End-to-end support for Fujitsu Integrated Systems with single point of contact



#### Fujitsu experience in MS HCI projects

Range of references demonstrating real-world customer benefits







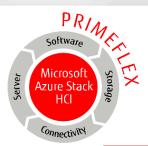
### Special offer: Fujitsu 2-node Microsoft HCI bundles



### Reference architectures for small Microsoft HCI deployments based on PRIMEFLEX for Microsoft Azure Stack HCI

- Provides a highly-available hyper-converged infrastructure at affordable costs
- Cost-optimized design with no external storage systems and LAN switches











Windows Server 2019:

The operating system that bridges on-premises and cloud.

Most cost-efficient infrastructure foundation for SMB, ROBO and IOT-Edge environments







# Fujitsu Software Infrastructure Manager Path to achieving software defined infrastructure





### **Simplified IT operations**

Converged, unified management across server, storage, networking and 3<sup>rd</sup>-party devices using a single user interface



### **Increased agility**

Intuitive software providing actionable insights leading to reduced customer response time









### Accelerate growth and innovation

Streamlined delivery of IT services to speed the transition to hybrid cloud















### FUJITSU Data Protection Portfolio -Backup for Integrated System PRIMEFLEX





Modern Data Management and Protection –

Consolidate and protect data from anywhere, across all platforms



Automated Backup and Recovery –

Protect everything, granular recovery, deep integration



Rich Data Lifecycle Management –

Define storage policies, media mix (disk, flash, tape, cloud)



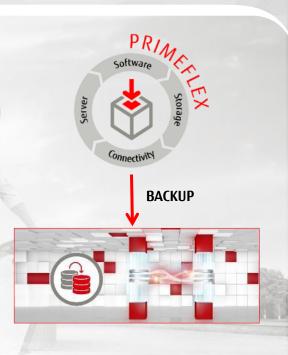
Efficient Disaster Recovery –

Replication, deduplication, offline & remote backup



Regulatory Compliance –

Long-term archiving, encryption, analytics, reporting



Protect your business against data corruption, deletion or cybercrime







### Fujitsu Infrastructure Support Services



Fujitsu SolutionPacks in combination with Hardware and Software Support Packs
Single Point of Contact
Technical Solution Support
Software Support
Hardware Support
Reactive Services
Proactive Services

## Designed to deliver end-to-end support for Fujitsu Integrated Systems

Incident management and Single Point of Contact (SPOC) for support for the entire Fujitsu Integrated System

Technical Solution Support (TSS) providing fast access to experts who analyze and identify issues and coordinate failure elimination

Hardware and software support for all released products certified for the respective Fujitsu Integrated System

Optional proactive services like technical account management, system health check and patch information management

Reduce support complexity - increase infrastructure availability







### FINIX Support Services for Azure Stack HCI





On-premises

Azure

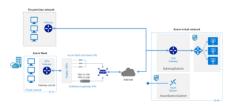
Ara enabled

Untus or

Windows Server

Azure Stack HCI for Remote Office/Branch Office

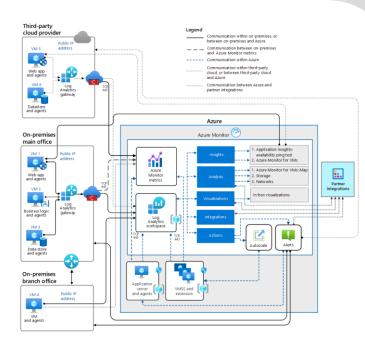
**Azure Arc hybrid configuration** 





Connect an on-premises network to Azure using a VPN gateway

Back up on-premises applications and data to cloud



Hybrid availability and performance monitoring







A cura di Claudio Ricci, Pre-sales ATF s.r.l.











### ATF - Chi siamo





Partner Tecnologico di riferimento per i propri clienti, si pone per far crescere le loro aziende con soluzioni di Digital Transformation che spaziano dal Printing alla Smart Collaboration, dai Sistemi IT alla Consulenza e implementazione dei nuovi processi digitali.

- > 32 sono gli anni di presenza sul mercato
- 32 risorse qualificate
- 4 milioni di euro di fatturato
- 2.000 clienti fidelizzati





### ATF e FUJITSU





ATF da sempre segue i suoi clienti attraverso un processo di miglioramento continuo.

I consulenti ATF forniscono alle esigenze di business delle aziende, soluzioni su misura, in grado di stimolare la crescita, ottimizzare i costi e fornire una migliore operatività, riducendone i rischi.

La partnership con Fujitsu e le certificazioni conseguite, ci permettono di fornire soluzioni e servizi di qualità ai nostri clienti.









### Case Study – L'esigenza





Per un cliente operante nel mercato manifatturiero, circa 5 anni fa, abbiamo dato una prima fornitura che prevedeva un sistema di server per replica dedicata alla business continuity.

Successivamente è nata la necessità di innalzare l'affidabilità della business continuity e di implementare risorse per soddisfare richieste Industry 4.0.

Per individuare la soluzione più adatta è stato creato un tavolo di lavoro con il cliente, volto ad una analisi specifica dell'esigenza.







Software

Azure Stad HCI

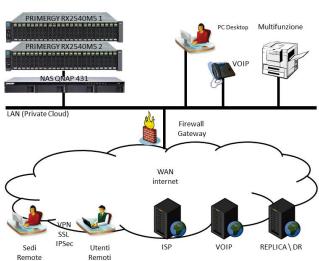
### Case Study – La soluzione





Il progetto ATF ha trovato nella soluzione PRIMEFLEX for Microsoft Azure Stack HCI il punto centrale su cui far girare l'intero sistema informatico aziendale.

Una soluzione comprensiva di hardware e software convalidato da Microsoft per garantire prestazioni e affidabilità.







### Case Study – I risultati

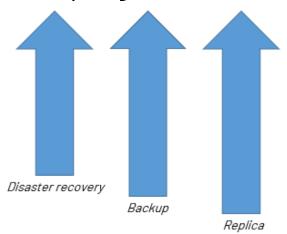




Il sistema HCl ci permette un alto livello di scalabilità garantendo l'investimento.

Abbiamo innalzato il livello di Business Continuity, migliorando:

- Disaster recovery
- Backup
- Replica



sfruttando le risorse di Azure Stack HCI di Microsoft





### Key Takeaways





Create
business-centric IT
Responsive
Fast, flexible and reliable
Easy, non-disruptive scalability



TCO

Reduce storage costs

Save floor space, power and cooling

Streamline management



Transform
with confidence
Reduce deployment risk
Gain faster time to production
Pay as you go



Windows Server 2019:

The operating system that bridges on-premises and cloud.

Go PRIMEFLEX for Microsoft Azure Stack HCI







# Domande?

gianni.vagnoli@finix-ts.com

federico.riboldi@finix-ts.com







shaping tomorrow with you