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Empowering Network Operators with Intelligent Data Infrastructure



BCC
services

Value model

The Digital Terrestrial Television Value Model illustrates the multiplicity and diversity of contributions delivered by digital terrestrial broadcasting, in terms of sovereignty and resilience, innovation, democracy, creativity and culture, social commitment and environmental sustainability.

Sovereignty and resilience

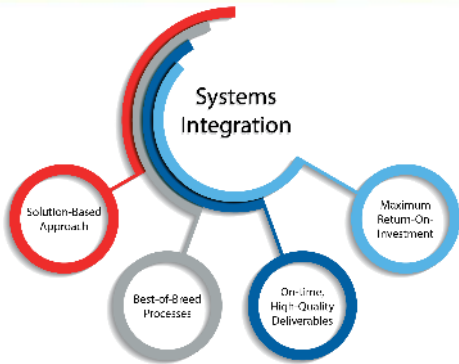
Sovereignty and resilience

As a critical infrastructure, organized in nationwide networks and operated under national licenses, DTT is an asset that strengthens European sovereignty.

At the same time, DTT infrastructure provides resilience for the broadcasters and the other multiple services using it. This turns DTT into the best platform to keep Europe safe, securing a functioning society in times of crises in the easiest way.

In any emergency, terrestrial broadcasting provides a key resilient network to reach out to citizens and support the work of emergency and rescue services, which often operate their own internal communication systems on the DTT infrastructure.

Who we are?



BCC
services

BCC Services at a glance



BCC Services is a **system integrator** with more than 50 years long business tradition and experience in the implementation, maintenance and professional services **for complex business-critical IT solutions, efficient delivery** with total cost reduction and improved return on investment.

BCC Services offers solutions based on equipment and solutions **from world-renowned manufacturers**, supplemented **with our expertise and experience**.

Our goal is to deliver **high-quality** design, installation, implementation, support and maintenance for the most complex IT environments.

BCC stands for “**Business Critical Computing**” which visualizes business vision and ambition.



How can we help? – Case1

Strengthening citizens' resilience



DTT - Strengthening citizens' resilience

From 1980 to 2020, natural disasters affected nearly 50 million Europeans and caused economic losses of roughly 12 billion € per year. The UN believes that these events are likely to increase in frequency and severity in the future.

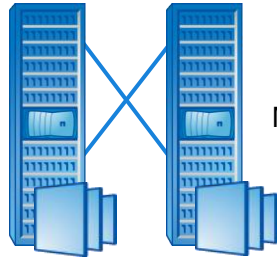
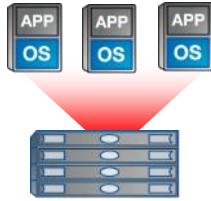
These events have the potential to disrupt interpersonal and mass communication networks, putting citizens' lives at risk and making the work of civil protection officers more difficult.

This was the case of the mass floodings in Germany – notably in the Ahr Valley–, Belgium and the Netherlands in summer 2021.

In Germany, all the severely affected areas experienced disruptions in mobile network services. In the Ahr Valley region, it took two weeks to recover the previous mobile coverage and up to one month to fully restore the network. Broadband services functioned normally only after five months. In Belgium, it took around 11 months to restore connection completely.

This case exemplifies the vulnerability of digital networks and how a redundant approach can help. Following this disaster, German broadcaster BR has started to test how Cell Broadcast, a technology that send warning messages directly to mobile phones, could be implemented in 5G Broadcast.

The MetroCluster Difference - continuous availability and zero data loss



MetroCluster™

Implement in a single data center
or across a metropolitan area

Zero RPO and no to low RTO

- Storage-level clustering and virtualization
- Aggregate-level mirroring of I/O
- Fully automated site failover
- Never lose a transaction

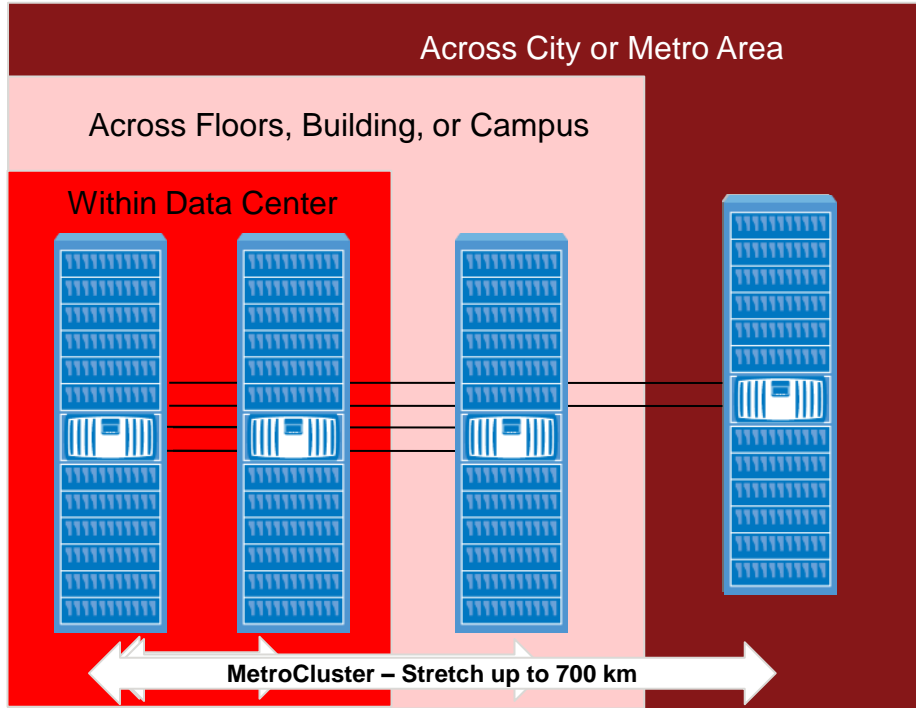
Enables clustering beyond data center

- Up to 700km configurations
- Site failover without scripting or reliance on host clustering
- Withstand multiple failure scenarios
- Perform maintenance operations without disruption or downtime

Extends benefit of storage efficiency

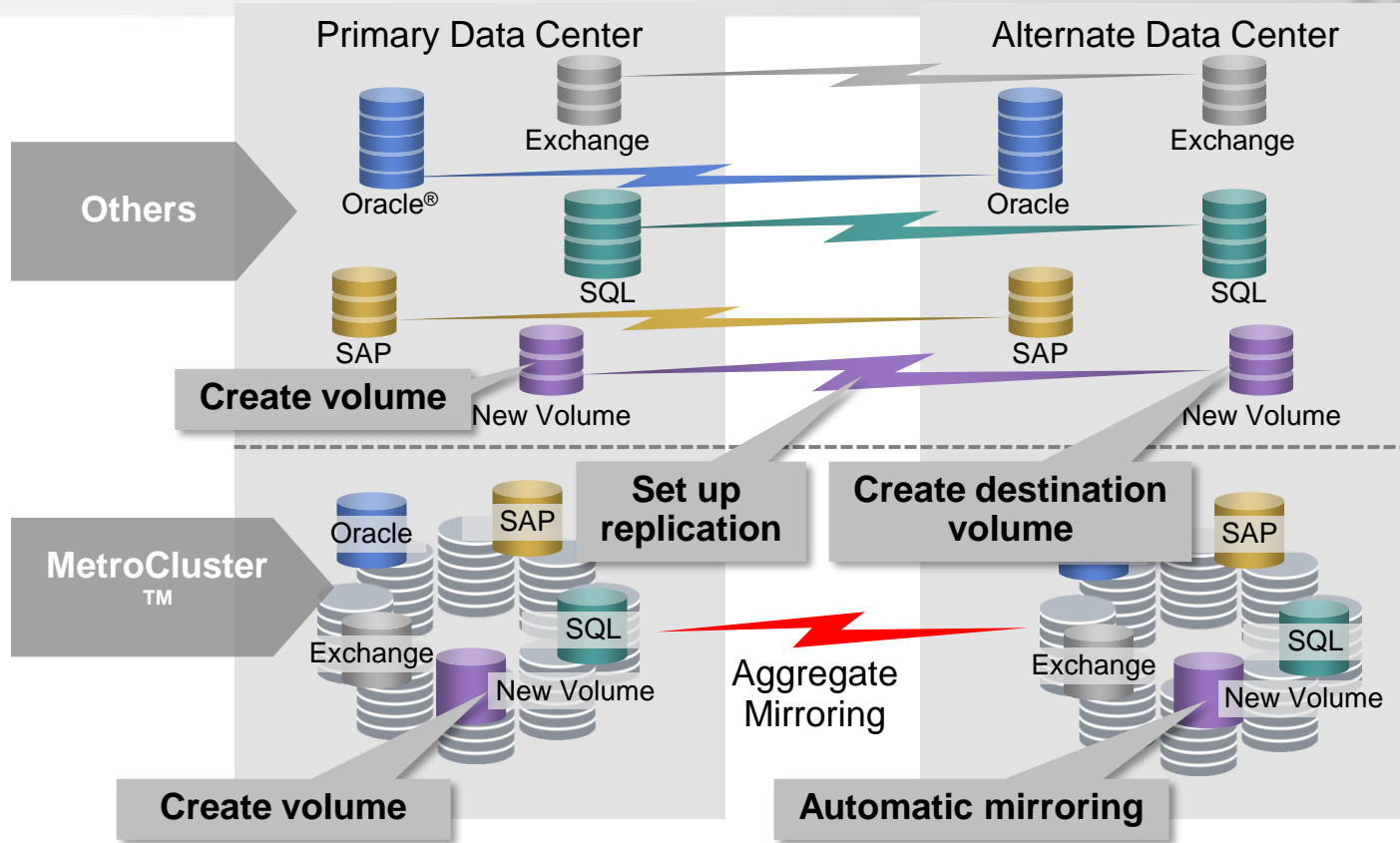
- Supports Snapshot™ copies, data deduplication, and compression

The MetroCluster Difference

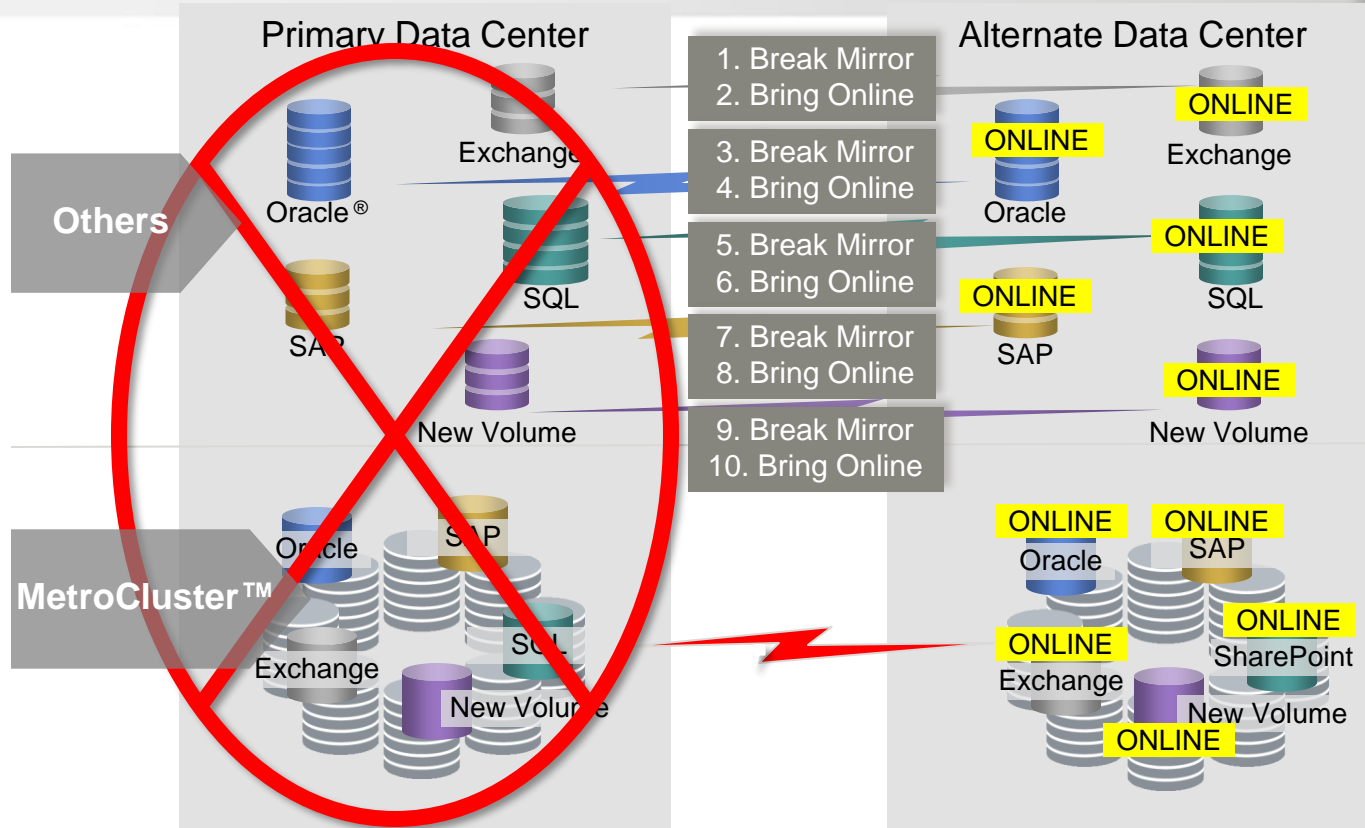


- NetApp® MetroCluster™ provides continuous availability within a single data center and across data centers in adjacent floors, buildings, and metro areas

The MetroCluster Difference: Automatic Protection



The MetroCluster Difference: Instant Recovery Time



How can we help? – Case 2

A safeguard against cyber threats



DTT - A safeguard against cyber threats

WHY?

Growing use of digital services by citizens comes with increasing cybersecurity threats. Distributed Denial of Service (DDoS) attacks are the most frequent and continue [to grow](#).

A recent [EU report](#) warns that cyberthreats are increasingly part of foreign information manipulation and interference campaigns, posing an additional risk to European and national sovereignty.

In this context, terrestrial broadcasting emerges as a resilient infrastructure against cyberattacks. DTT transmitters can only be accessed remotely via their head-ends, which are highly protected, while at the same time employing signal feed redundancies such as satellite feeds, backup microwave links or even over-the-air reception from another site. Therefore, DTT remains available in case of a general shutdown of the Internet or mobile networks due to power outages or attacks.



RANSOMWARE ATTACK

Your personal files are encrypted

You have 5 days to submit the payment!!!

To retrieve the Private key you need to pay

Your files will be lost



YOUR FILES ARE ENCRYPTED
Your photos, documents and other important files have been encrypted with unique key, generated for this computer.

NEXT

YOUR COMPUTER HAS BEEN LOCKED!

This operating system is locked due to the violation of the federal laws of the United States of America! (Article 1, Section 8, Clause 8; Article 202; Article 210 of the Criminal Code of U.S.A. provides for a deprivation of liberty for four to twelve years.)

Following violations were detected:

Your IP address was used to visit websites containing pornography, child pornography, zoophilia and child abuse. Your computer also contains video files with pornographic content, elements of violence and child pornography! Spam-messages with terrorist motives were also sent from your computer.

This computer lock is aimed to stop your illegal activity.

To unlock the computer you are obliged to pay a fine of \$200.

You have 72 hours to pay the fine, otherwise you will be arrested.

You must pay the fine through

To pay the fine, you should enter the digits resulting code, which is located on the back of your in the payment form and press OK (if you have several codes, enter them one after the other and press OK).



OK

RANSOMWARE ATTACK

You only have 3 days to submit the payment, or your files will be lost

Time Left
02:23:59:06

NetApp secures and protects against today's top concerns

Integrated security is incorporated throughout the NetApp portfolio



Compromised administrator credentials—**multifactor authentication (MFA)**



Stolen data—**layered encryption**



Assured data retention—**write once, read many (WORM) storage**



Hacked software images—**secure boot**



Rogue administrators—**multi-admin verification and audit logging**



Ransomware attacks—**NetApp® Snapshot™ copies and integrations**



Lateral network attacks—**secure multitenancy (SMT)**



Disaster outages—**data replication**

**The only enterprise
storage vendor validated
to store top-secret data
everywhere**



Commercial Solutions
for Classified (CSfC)
Component List



FIPS 140-3



Department of Defense
Approved Product List
(DoDIN APL)



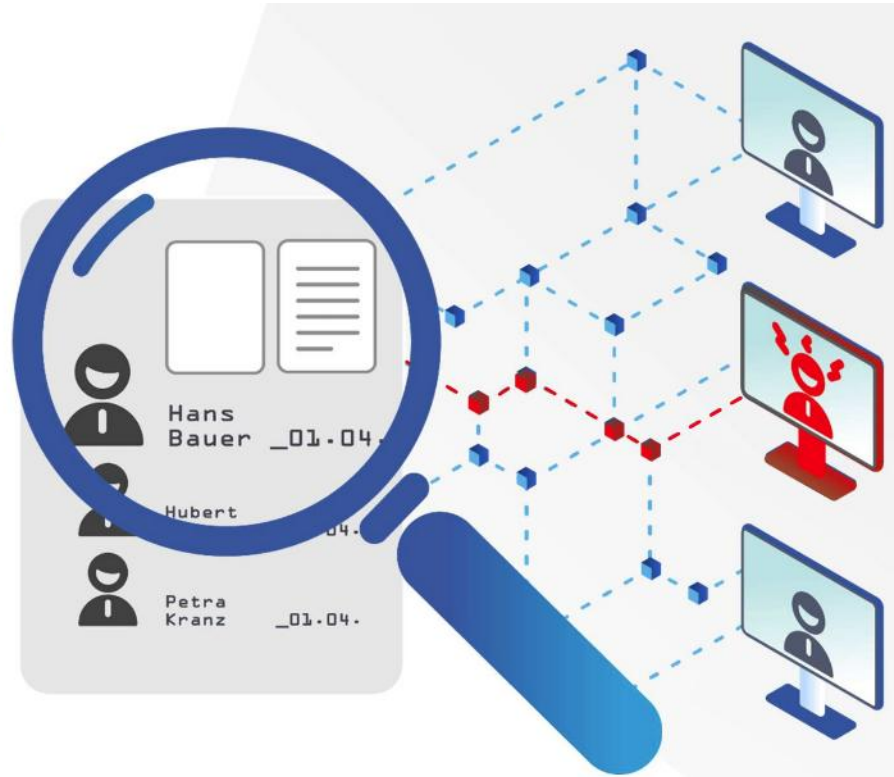
Common Criteria

The CryptoSpike Difference – instant data recovery against any cyber threat

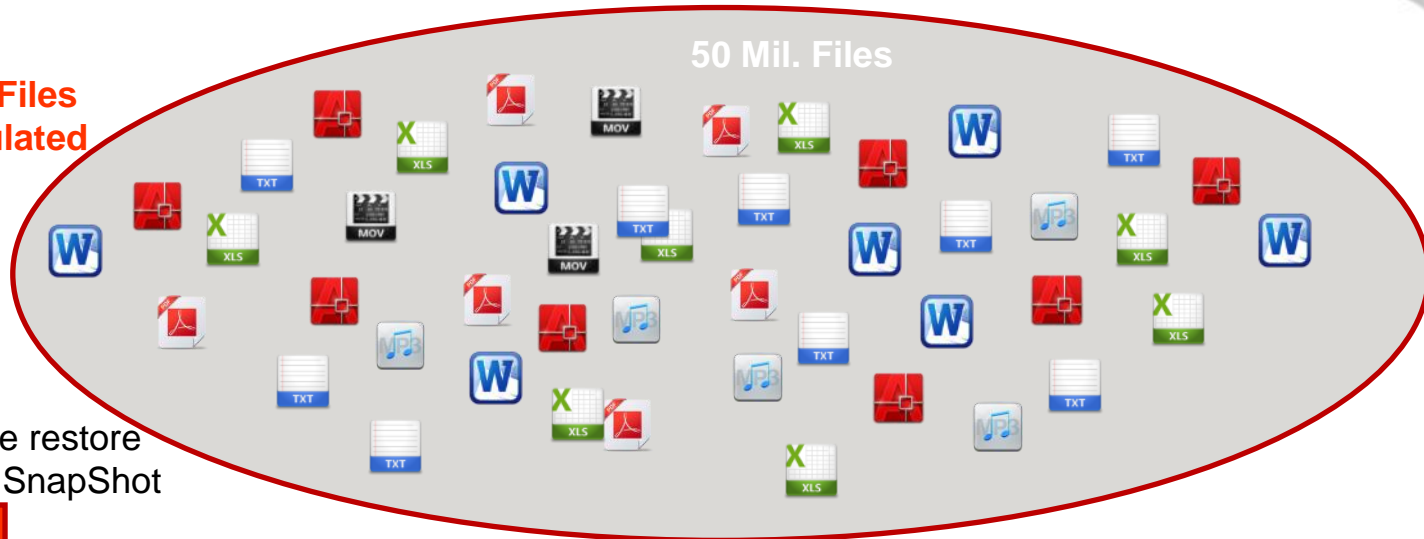
Use Cases:

- Access Transparency
- Insider Threats

- ? Who did what?
- ? What happened?
- ? Which data was affected?

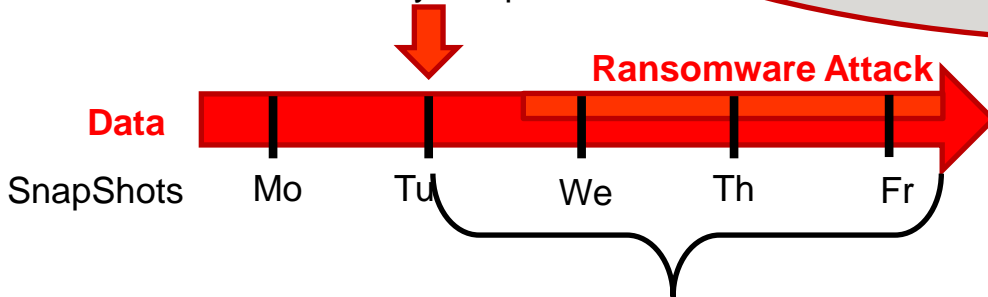


The CryptoSpike Difference: Automatic Protection



Only one option:

Total volume restore to Tuesday SnapShot



Ransomware Attack:

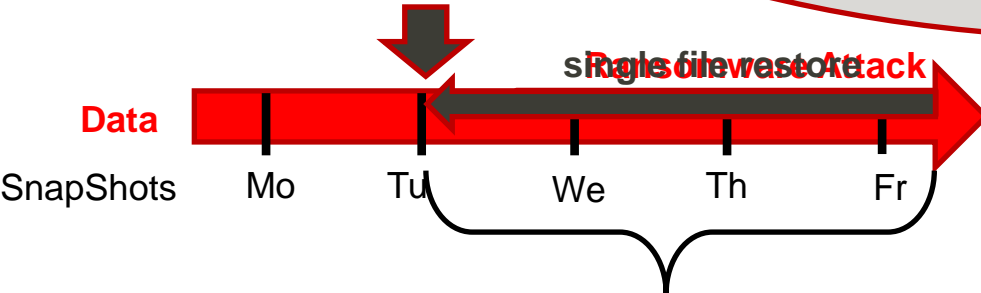
- File name and file type didn't change!
- Last access date didn't change!
- All files look the same!

How can you separate good from bad content?

The CryptoSpike Difference: Instant Recovery Time



Restore only affected content



All other users continue without data loss!

Active blocking mechanism!

- Find affected files easily
- Block affected user access
- Detailed history per user
- Alert administrator to restore functionality

Restore only content for affected user!

Why us?



BCC
services

BCC SERVICES DOO

BCC Services is a system integrator with a long business tradition and experience in the implementation, maintenance and professional services for complete business critical solutions. BCC Services offers solutions based on equipment and solutions from world renowned manufacturers, supplemented with our expertise and experience. BCC Services constantly invests in professional development, education and training of its employees. BCC Services is: NetApp Integration Services Certified - Consult, plan, deploy, and integrate NetApp technologies in common hybrid multicloud solutions with ONTAP specialization and ONTAP DATA SAN specialization. NetApp Lifecycle Services Certified - Consult, plan, deploy, integrate, manage, and support NetApp solutions across hybrid multicloud environments. BCC Services has three competencies in new NetApp partner program "NetApp Solution Competencies: Competency for „Hybrid Multicloud with Vmware“ – BCC Services demonstrate expertise in the successful selling and deployment of hybrid cloud solutions based on a mutual partnership with NetApp and VMware. Competency for „NetApp Technologies for Security & Ransomware Protection“ – BCC Services demonstrate expertise in the successful selling and deployment of hybrid cloud solutions with cyber resilience. Competency for „Data Protection with Commvault“ – BCC Services demonstrate expertise in the successful selling and deployment of hybrid cloud solutions based on a mutual partnership with NetApp and Commvault.

Solution Competencies

Hybrid Cloud

Block Storage Solutions with NetApp ASA

Cyber Resiliency – Data Protection with Commvault

Hybrid Multicloud with VMware

Cyber Resiliency – NetApp Technologies for Security & Ransomware Protection

Services Certified

Integration

ONTAP

ONTAP SAN

LifeCycle

Hybrid Cloud

[Contact Partner →](#)

Thank you

*Q&A at our
conference
booth*

