**NetApp®**

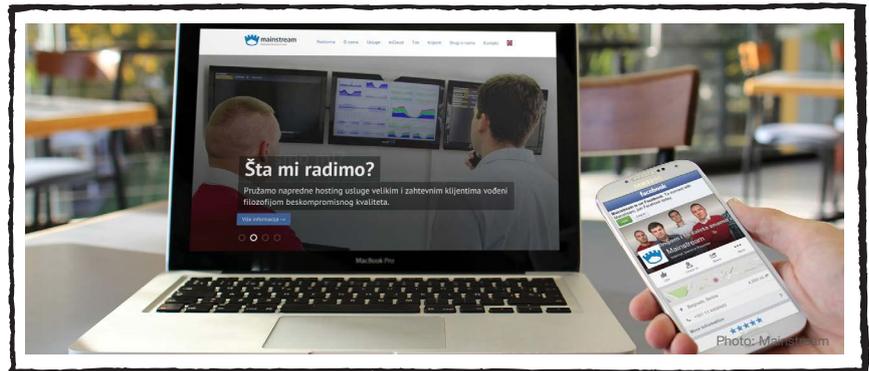*Success Story*

# Mainstream Blends Flash Performance and Efficiency of NetApp Storage to Grow Its Cloud Business Globally

**mainstream**
PREMIUM HOSTING

Another NetApp
solution delivered by:

**FUJITSU**



Photo: Mainstream

## KEY HIGHLIGHTS

**Industry**
Web-hosting and cloud services

**The Challenge**
Meet growth on all levels by using latest technologies with efficiency in mind.

**The Solution**
Standardize on NetApp® solutions and Fujitsu servers for a demanding hosting infrastructure.

**Benefits**
- Counteract up to 300% data growth per year
- Shape and create managed services to meet customers' needs
- Grow performance, redundancy, and capacity on demand
- Set for future growth plans in the European Union and the United States
- Balance performance and capacity needs with flash technology
- Save up to 30% of capacity with deduplication

## Customer Profile

Located in Beograd, Serbia, Mainstream (www.mainstream.rs) is the largest provider of web-hosting services in Serbia today. The company, with its team of experienced and highly skilled engineers, operates two tier 3 qualified data centers in Serbia, one in the United States, and one in France and peers with all major ISPs. Support is available 24/7, and the guaranteed availability of the hosted websites is at 99.99% per month. According to Gemius Audience rating, the provider hosts 8 out of the 10 most popular websites and web portals in Serbia.

## The Challenge
### Leverage leading-edge technology and meet growth challenges

Mainstream works with the latest infrastructure equipment to meet demanding service levels. The hosting infrastructure, with its more than 800 virtual machines, currently serves up to 30,000 HTTP requests per second and is capable of serving more than 100,000 HTTP requests per second. At the core of Mainstream's portfolio are managed web hosting for large and demanding clients and video and audio streaming services. The latest achievement is mCloud, an automated public cloud offering. At any time, a user can create a virtual server within 10 minutes through Mainstream's

website. With a few clicks that user can choose performance, server, and network resources; decide on the operating system; and assign popular scripts.

Mainstream's way of caring for customers and their needs along with leveraging leading-edge technology and services have made it number one in the Serbian web-hosting market. However, success has its downside, because Mainstream needs to cope with growth on many levels: data grows at rates of up to 300% per year, performance is a constant challenge, and costs keep increasing. According to Aleksandar Milosavljević, chief technical officer at Mainstream, more customers are just one driving factor. The biggest impact has rich media content followed by a rising demand for big data analytics.

Milosavljević has more than 15 years of experience with hosting infrastructures at large ISPs. When Mainstream started its managed hosting business in 2008, he chose NetApp as the core storage platform: "We knew that NetApp would help us meet any challenge, whether it was growth, capacity, performance, or redundancy."

### The Solution
#### NetApp storage for a demanding infrastructure

From day one in its history, Mainstream has trusted the expertise of Fujitsu Technology Solutions to equip its infrastructure with servers, storage, and related components. "Fujitsu's local team is very reliable and great to work with," acknowledges Milosavljević.

Today, Mainstream's storage infrastructure builds on a NetApp FAS3250 midrange system supporting Fujitsu dual socket PRIMERGY RX200 servers with open-source Linux®. The public cloud environment with services and orchestration runs on OnApp with KVM server virtualization. Virtualization for the premium managed hosting services is based on Citrix XenServer. Though Mainstream mostly deploys NFS, a traditionally strong domain of NetApp, it also benefits from NetApp's unified architecture with its multiple protocols and applies iSCSI and NDMP for specific applications.

Mainstream shaped the storage for performance and made the most of it with NetApp's flash technology. "Of course, we looked as well into other storage vendors' solutions," says Milosavljević. "But NetApp was simply at least one level better."

The provider deploys NetApp Flash Cache™ modules for random read – intensive workloads and the NetApp Data ONTAP® functionality Flash Pool™ for both random read and write operations. Flash Pool allows solid-state drives and SAS or SATA hard-disk drives in one logical unit. Both ways result in a virtual storage tier: Frequently accessed "hot" data blocks are automatically cached on flash media without setting policies or migrating a single bit of data.

Additionally, Mainstream leverages NetApp features such as cloning, Snapshot™ technology, deduplication, and thin provisioning. Thus, the provider achieves fast front-end services for its customers as well as convenient management capabilities in the back end.

### Business Benefits
#### Start small and grow efficiently

NetApp helped Mainstream to start small and grow its storage and feature set. Mainstream's first NetApp storage, a FAS2000 series system, is still in use for some low-priority services and serves as a backup and replication target. Thanks to a single operating system for all FAS storage systems, Mainstream can protect the investment and capitalize on it. Backup, for example, is a critical service, especially for the mCloud and the managed services infrastructure. Mainstream uses Rsync and NDMP copy, but leverages as well the NetApp Snapshot technology in many ways. The provider can offer several Snapshot copies a day or combine Snapshot and replication as services. Because Snapshot copies help to roll back any set of data within seconds, Mainstream can keep up its high service levels for the web-hosting infrastructure. With Snapshot copies, any maintenance tasks or changes to the environment lose their risks.

NetApp software features allowed Mainstream to launch new and demanding services such as mCloud. Cloning and thin provisioning are the means to provide a new server or service in less than 10 minutes or add storage capacity on the fly. These capabilities tie into the online catalog system from which the cloud user can configure a preferred system.

Beyond the convenience of its features, NetApp helps customers to save money. "NetApp's flash technology is perfect to gain more performance without the need to deploy additional disk drives and capacity," says Milosavljević. "It helps us to delay disk purchases for at least six months." Data deduplication adds to the savings and results in up to 30% less disk space.

#### Expand the business on a large scale

With a scalable infrastructure in place, web hosting, streaming, and cloud services can easily be expanded into a global business. Mainstream's management wants to enhance its current business in the European Union and the United States. This means raising the bar of the current 50% business growth rate per year to 70% to 100%. Because this challenge will entail issues such as more redundancy, capacity, and performance, the move to clustered Data ONTAP with its nondisruptive and scale-out operations is the next item on Mainstream's IT agenda.

"We are very satisfied with NetApp storage and data management," summarizes Milosavljević. "It's a great platform on which to build a data business. You don't have to think whether you can maybe do something; you simply can do it."

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## SOLUTION COMPONENTS

### NetApp Products
NetApp FAS3200 series
NetApp FAS2000 series
Data ONTAP 8.1
Flash Cache
Flash Pool
SnapMirror®
Storage efficiency features

### Protocols
NFS, iSCSI, NDMP

### Third-Party Products
Citrix XenServer

Fujitsu dual socket PRIMERGY RX200 servers

OnApp infrastructure as a service platform

OnApp KVM hypervisor

Open-source Linux

### Partner
Fujitsu Technology Solutions
*www.fujitsu.com/rs*

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