Solution Brief

Accelerate the Software Development Lifecycle with NetApp CodeEasy Toolkit

Key Benefits

Streamline Workspace Creation
Achieve a dramatic reduction in provisioning time for both physical and virtual environments and scale to thousands of virtual desktops with little additional storage footprint.

Minimize Storage Requirements
NetApp® FlexClone® volumes decrease storage requirements by 20 to 40 times, reducing the overall storage footprint across development teams.

Improve Developer Productivity
Developer productivity increases by up to two times by reducing the time to check out and build workspaces from hours to minutes. Automated processes "refresh" the prebuilt workspaces so that they contain the latest code.

Accelerate Time to Market
Create cleaner code that requires less code reworking to fast-track time to market.

The Problem

Today's design teams face long build times, the need to minimize storage consumption, and inflexible resources used by thousands of developers. With individual design workspaces requiring tens to hundreds of gigabytes of disk space, IT infrastructures continue to be stressed with increasing loads on enterprise appliances, the network, and NFS infrastructure. Simply buying more storage does not solve the problem.

The success of any development environment depends on effective communication between operations and development teams to design a flexible infrastructure that can be quickly deployed for coding, build/test, and production. And software developers want complete autonomy from infrastructure provisioning. To meet these needs, the adoption of DevOps continues to accelerate.

Transforming Development with DevOps

DevOps is a software development process in which developers and operations work together in continuous synergy. DevOps uses self-service provisioning—both on the premises and in the cloud—to get developers the resources they want, when they need them, in ready-to-use development workspaces. With a strong emphasis on open source resources and using APIs for integration, developers can access a rich set of tools to streamline application development and testing. Developers spend less time worrying about the infrastructure and instead focus on code development, which leads to innovation.

> "Developers are the most important, most valuable constituency in business today, regardless of industry."
>
> Stephen O'Grady
> The New Kingmakers: How Developers Conquered the World

NetApp is a popular storage choice for software development environments because of its storage efficiency, reliability, performance, and data manageability tools. NetApp FAS, EF-Series all-flash arrays, and All Flash FAS support the performance demands of a shared storage platform as software code repositories, a software build environment, and ongoing version control.

NetApp CodeEasy Toolkit for DevOps

NetApp was an early adopter of DevOps with an internally created environment: CodeEasy. By enabling automated provisioning of development and QA workspaces for a 2,000-strong, geographically dispersed development community, we achieved significant operational and productivity improvements over the past 7 years.

The CodeEasy Toolkit is a DevOps methodology using NetApp FlexClone and NetApp Snapshot® technologies to dramatically save developer checkout and build time and significantly reduce storage usage. The toolkit automates steps to create and manage developer FlexClone workspaces and easily fits into most DevOps environments with few to no changes.

NetApp®

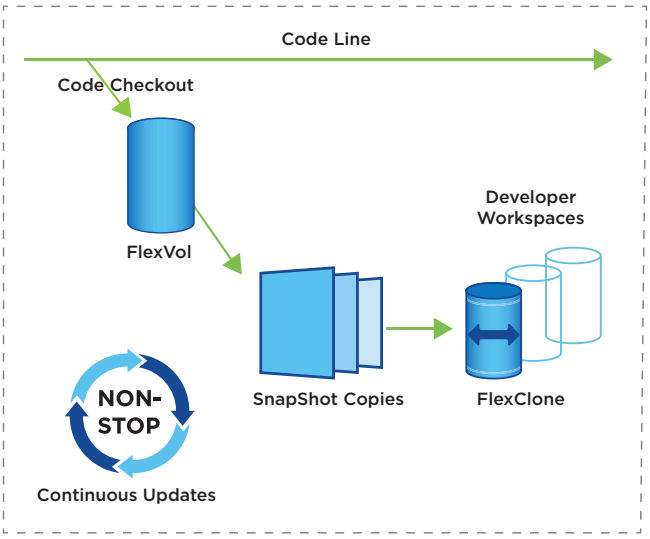

Figure 1) Containers make DevOps easier

Toolkit scripts are open source and shared with the developer community to refine and customize them. Since each development environment is unique, the scripts provide a starting point that can be tailored for specific security, control, and workflow requirements. The toolkit is so easy to use that, within a few hours, you will see savings in both time and storage usage. The CodeEasy Toolkit uses an SDK to automate steps to create and manage developer FlexClone workspaces.

FlexClone

NetApp FlexClone technology creates instantaneous user workspaces with no additional storage to deliver increased business agility, risk mitigation, and storage efficiency. FlexClone shortens design and test cycles and improves service levels by instantly creating space-efficient data replicas. With FlexClone copies, developers can:

- Reduce time—from minutes to hours—for code checkout and initial builds by creating instant user workspace copies.
- Mitigate the risk of polluting the original copy of the code.
- Reduce storage requirements by eliminating the need to replicate full copies of source code.
- See a negligible performance impact with common blocks of storage cached, resulting in very low read latency and faster appliance performance.

NetApp Snapshot

NetApp Snapshot technology enables developers to create point-in-time copies of user workspaces and mark them with a unique change number or identifier. These identifiers isolate the different consistent Snapshot copies that are taken every time the developer changes the code. Using NetApp SnapRestore® software, you can restore to an earlier change number or identifier if the current Snapshot copy does not pass the unit or continuous integration tests. Restores can be made rapidly from any of the copies, providing developers with an exceptional recovery time objective.

- Make instant data copies while your applications run.
- Create Snapshot copies in under a second, for any volume size.
- Make up to 255 Snapshot copies per volume for online backup and recovery.

Database Cloning

FlexClone creates virtual copies of production data using NetApp Snapshot to produce a baseline copy for use by multiple development teams. FlexClone stores only new or changed data blocks for each virtual copy instead of a full copy of the database. Data block tracking is transparent to the database and applications, so development teams see a full database while consuming additional storage only for the changes to the application. Because no data blocks need to be copied when the FlexClone volume is created, development databases can be refreshed in minutes instead of days.

FlexClone for Perforce

Perforce Helix is a comprehensive platform for collaboration and version control. Working with Perforce, NetApp created a Perforce P4 plug-in that adds FlexClone commands directly into Perforce for simple, tight integration. The P4 Flex solution, implemented in Python, delivers similar functionality to the CodeEasy Toolkit. The plug-in is an open source reference. You can download the P4 Flex plug-in at https://swarm.workshop.perforce. com/projects/netapp-p4flex.

Learn More About the CodeEasy Toolkit

Get started on the path to DevOps with the NetApp CodeEasy Toolkit. You will improve developer efficiency with automated common, repeatable storage processes and consistent best practices and processes.

About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.
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