

Software-Enabled Flash

Open Source, Software-Defined Flash Solution

Tuesday Aug 8, 2023 3:20PM

SARC-103-2

Sean Stead, KIOXIA America

as a member of and on behalf of Software Enabled Flash

A Linux Foundation Community Project

* The Linux Foundation and Software-Enabled Flash Project and logo are trademarked by the Linux Foundation



The Opportunity

Flash ~~needs to be~~ **Is NOW** Software-Defined

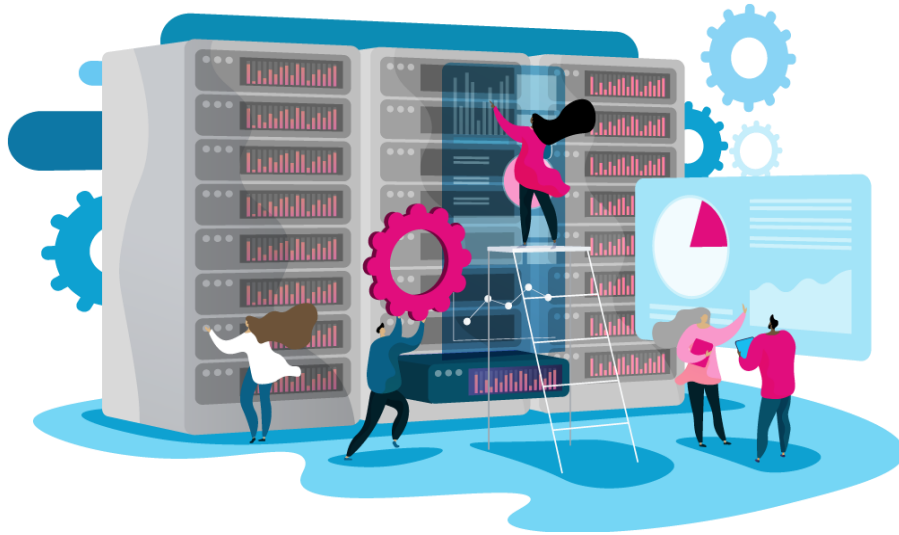
Software-Enabled Flash™ Technology

Software-Enabled Flash™

A Linux Foundation Open Source Project



A Flash Native Solution for Innovation



- A software-defined flash API
- Optimized for flash's digital nature
- For TCO-driven solutions in the cloud

A force-multiplier in data center economics

* The Linux Foundation and Software-Enabled Flash Project and logo are trademarked by the Linux Foundation

A Media-Based, Software-Defined Approach

**Fundamentally
redefines the
relationship
between the host
and solid-state
storage**

- Brings control of media to software
- Host applications have control over storage functionality and behavior
- Resolves legacy overhead problems and enables new features
- Maximizes flash flexibility, performance and parallelism...

in other words, its value.

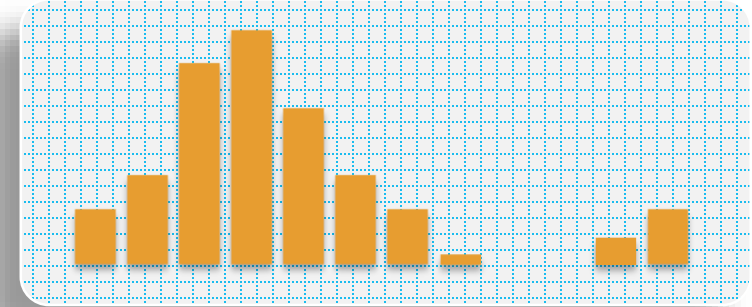
For Developers

Tools and Value Propositions

Developer Control



Isolation



Latency Outcomes



Data Placement

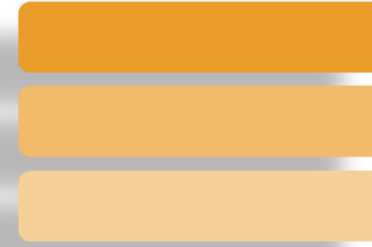


Copy Offload

Multiprotocol, in software



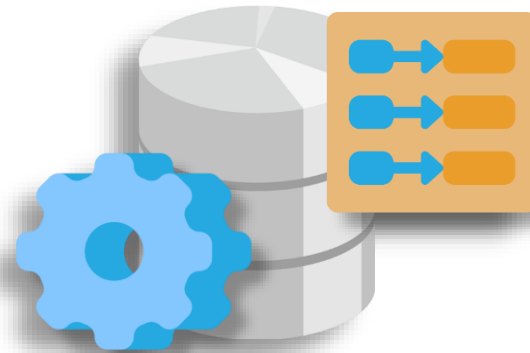
Block



Zoned



Smart FTL/
FDP



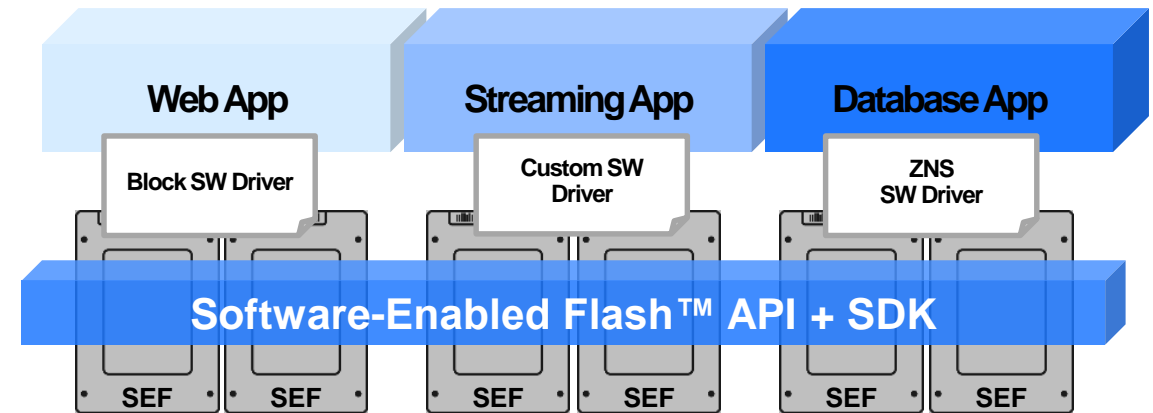
+ others

Hardware & Software Working Together

the **Software-Enabled Flash™** value proposition

One software-defined drive

- Multiple applications
- Multiple protocols
- Fully customizable
 - Data placement & workload isolation
 - Control over latency outcomes
 - IO control & advanced queuing



Unlock the full power of flash storage

Redefining Flash for Storage Innovation



Focus on applications, not low-level flash operations



Better, tuned use of flash per application



**Isolation + Latency Control +
Placement + Offload + SDK**

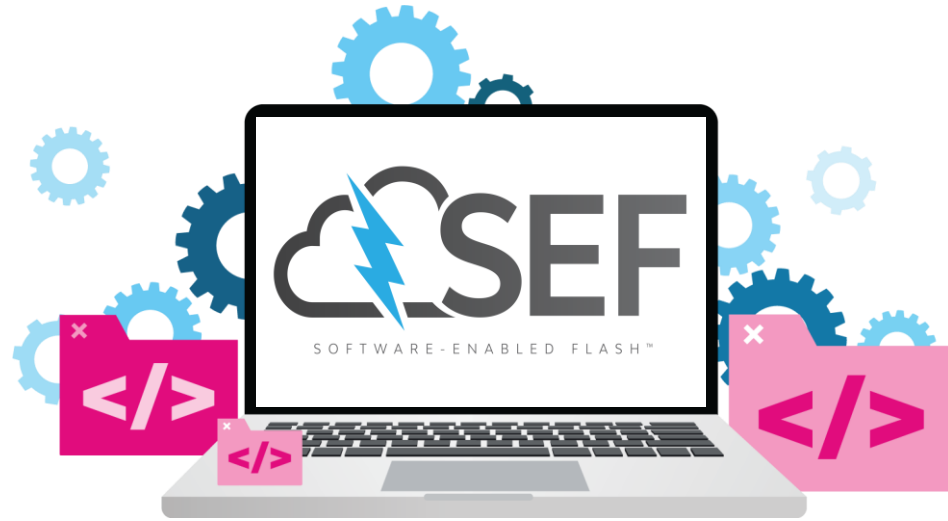
= Better Application Results

Collaboration Resources

These sites can **support multiple projects**

- › <https://softwareenabledflash.org>
- › **GitHub**
<https://github.com/SoftwareEnabledFlash/>
<https://github.com/SoftwareEnabledFlash/TSC/>
- › **Online API Docs**
<https://softwareenabledflash.github.io/SEF-API/>
- › **Mailing List**
<https://lists.softwareenabledflash.org/g/sef-dev/join>

Would you like to know more ?

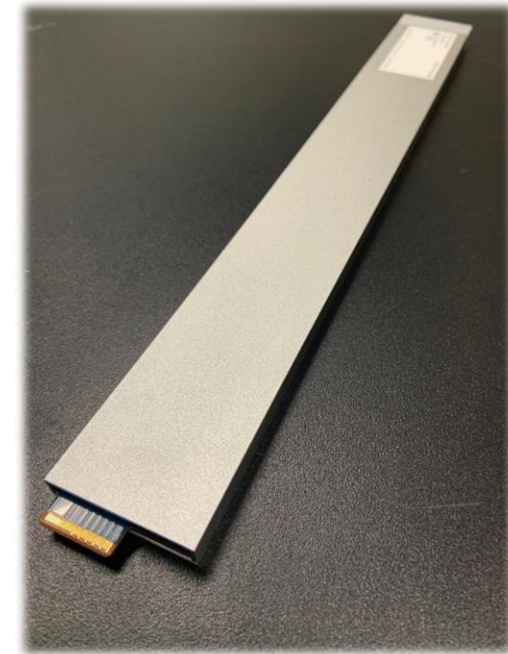


Software Enabled Flash Project member, KIOXIA, has a working demo of SEF flash hardware compatible with the project's open source software in booth #307

<https://softwareenabledflash.org>

Project is live
Membership is open

 THE **LINUX** FOUNDATION



*Photograph used with permission of
KIOXIA*

Linux Foundation Code of Conduct

- › LF Projects is committed to maintain a positive, professional work environment. This commitment calls for workplaces where participants at all levels behave according to the rules of the following code. A foundational concept of this code is that we all share responsibility for our work environment.
- › Full code text
 - › <https://lfprojects.org/policies/code-of-conduct/>

Legal Notices

The Linux Foundation, The Linux Foundation logos, and other marks that may be used herein are owned by The Linux Foundation or its affiliated entities, and are subject to The Linux Foundation's Trademark Usage Policy at <https://www.linuxfoundation.org/trademark-usage>, as may be modified from time to time.

Linux is a registered trademark of Linus Torvalds. Please see the Linux Mark Institute's trademark usage page at <https://lmi.linuxfoundation.org> for details regarding use of this trademark.

Some marks that may be used herein are owned by projects operating as separately incorporated entities managed by The Linux Foundation, and have their own trademarks, policies and usage guidelines.

All other trademarks are the property of their respective owners. Use of such marks herein does not represent affiliation with or authorization, sponsorship or approval by such owners unless otherwise expressly specified.

The Linux Foundation is subject to other policies, including without limitation its Privacy Policy at <https://www.linuxfoundation.org/privacy> and its Antitrust Policy at <https://www.linuxfoundation.org/antitrust-policy>. each as may be modified from time to time. More information about The Linux Foundation's policies is available at <https://www.linuxfoundation.org>.

Please email legal@linuxfoundation.org with any questions about The Linux Foundation's policies or the notices set forth on this slide.