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Intel's Journey with OpenBMC

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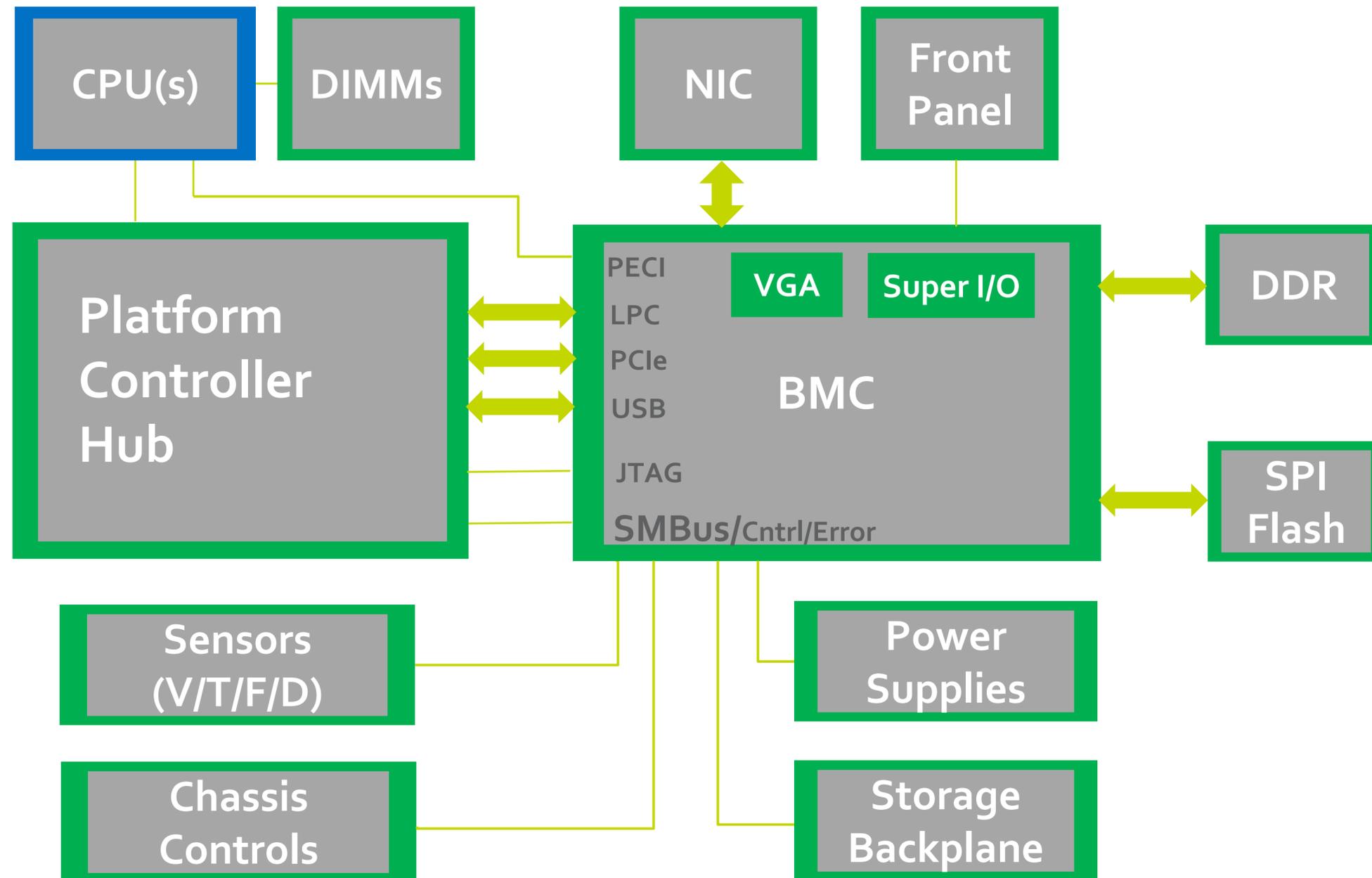
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Quick Introduction

- Management Interface to Server Hardware
- Host Power and Reset Control
- Sensor Monitoring, Event Logging, and Alerting
- Satellite Controller Updates and Monitoring
- Remote Server Management

Server Block Diagram



Intel BMC History

- 1995-98 PCAT & PCI LanDesk Add-In Cards
- 1997-99 80652, Dallas 80CH10/11
- 1999-04 Intel Sahalee BMC
- 2004-06 Intel Enhanced South Bridge 2 (ESB2)
< Switch to 3rd Party BMC HW >
- 2006-15 Server Engines/Emulex Pilot BMC
- 2015-18 Aspeed AST2500 BMC w/Prop FW Stack
- 2017-... Aspeed AST2500 BMC w/OpenBMC Stack

Why Intel with OpenBMC?

Market Direction

- Customer Desire
- Security, Easy Access to Source Code

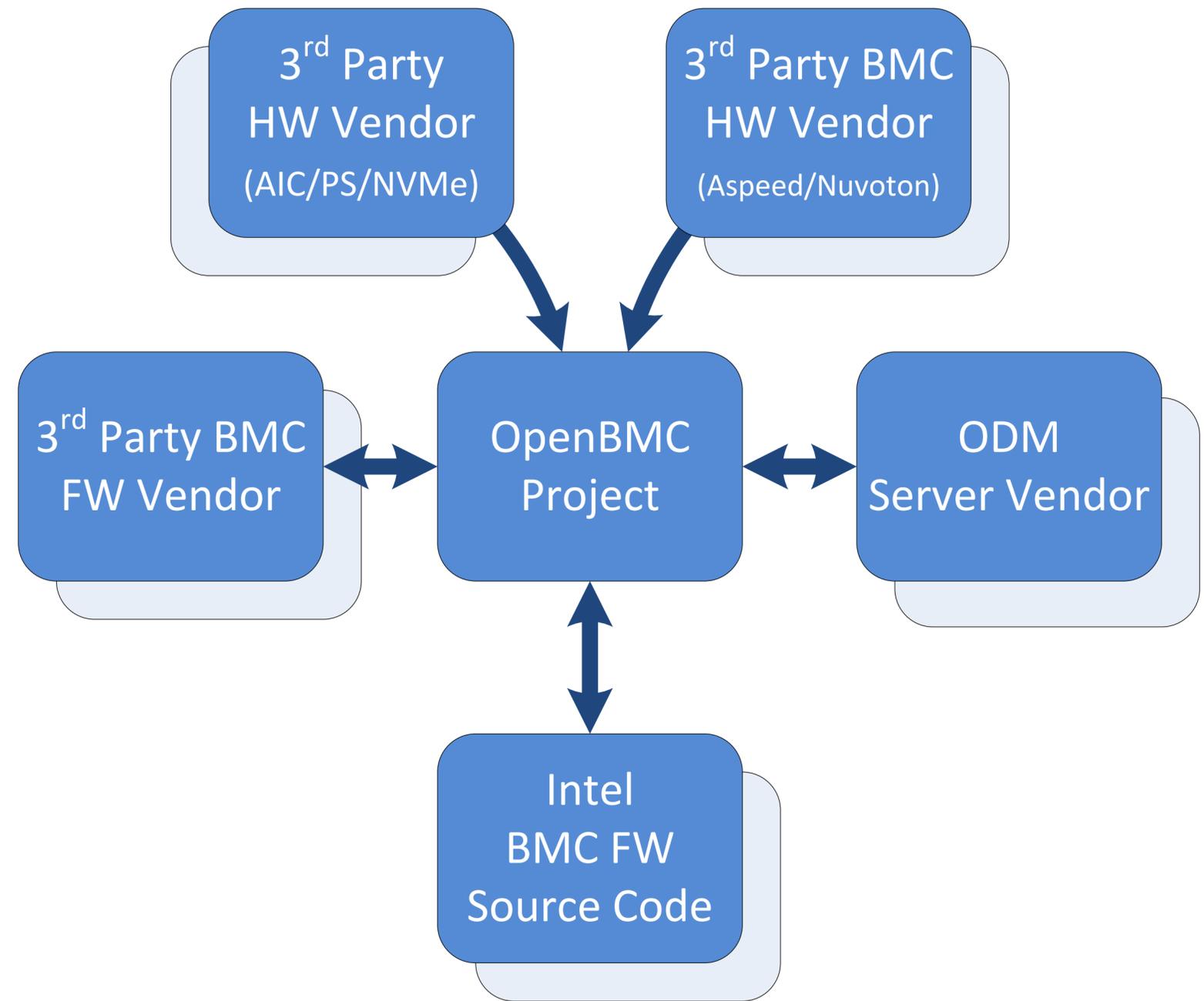
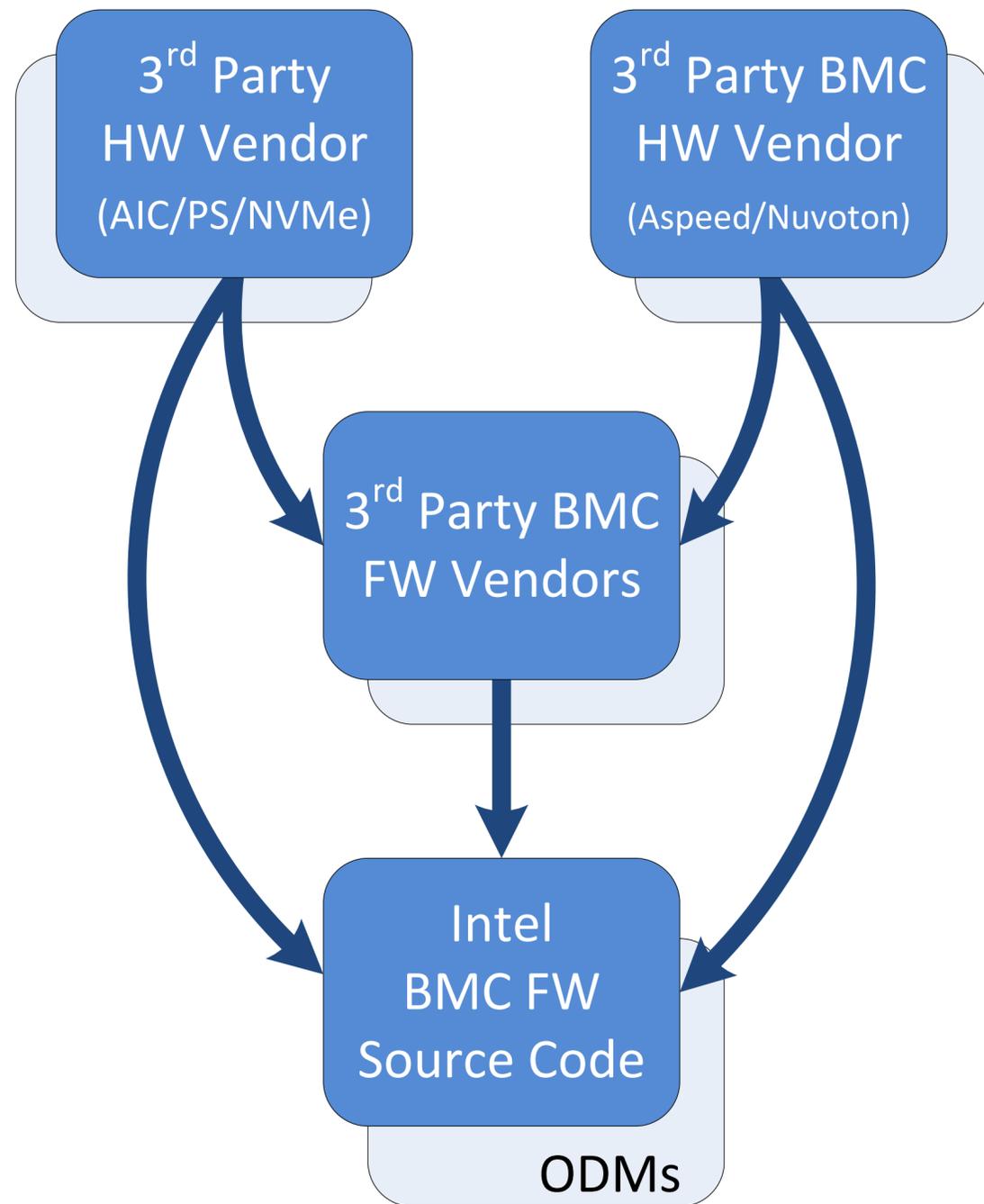
Collaboration

- Shared Efforts
- Enabling ODMs and 3rd Party Vendors

Management Interoperability

-  **OPEN**
Compute Project® 
Redfish

Traditional vs. OpenBMC



Goals with OpenBMC

Product Development Cycle

- Faster Response
- Reuse (ODMs, Customers)
- Flexibility (Compute, Storage, Network)
- Hardware Vendor Participation
- Manageability Commoditization
- Common Interfaces
 - Discovery, Updates, Sensor and FRU Configuration

OpenBMC Benefits

- Tool Kit for Manageability
- Transparency
- Use of Best Known Practices
- Broader Range of Viewpoints
- Freedom and Choice
- Customizable

OpenBMC Shopping List

Host Interfaces

✓ KCS

BT

✓ mbox

✓ IPMB

✓ USB

✓ VGA

Network Interfaces

✓ Redfish

✓ https

✓ ssh

rmcp+

Applications

✓ EWS

KVM

✓ IPMI

✓ FSC

✓ SEL

✓ SOL

✓ Chassis Control

ASD

✓ Firmware Update

✓ Configuration Manager

✓ Sensor Monitor

OpenBMC Vendor Opportunities

- New Technology Development and Deployment
- Accelerate Management of New Products Across Multiple Server Vendors
- Hardened BMC Security
- Focus On Higher Value Add Features

OpenBMC Challenges

Product Development vs. Open Sourcing

- New Development Space for BMC FW Team
- Meeting Product Schedules

Process Synchronization

- Code Reviews, Repository Maintainers
- Unit Testing (Test Driven Development)

Aligning Product Level Requirements

- Competing goals

OpenBMC Challenges (continued)

Security

- Evolve Away From Insecure Protocols
- Threat Model and Analysis
- Process Isolation
- Use Access Control Lists, SELinux, AppArmor
- Tripwire, rsyslog
- Penetration Testing and Sharing Results

Get Involved

Check out the OpenBMC repository

<https://github.com/openbmc>

Check out the OpenBMC Website

www.openbmc.org

Check out OCP's HW Management & Security Project Groups

<http://www.opencompute.org/projects/hardware-management/>

<http://www.opencompute.org/projects/security/>

Watch For Future Hackathon Events Hosted By Intel

Visit the Intel Booth A12

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