



# Foundation Technical Agenda

*Jeff Brown, TSC Chair*

IBM/OpenPOWER Foundation



# Technical Agenda



## WorkGroups



### Open Development

open software, open hardware

### Open Specifications

- Available for use
- Enhanced by members



### Collaboration of thought leaders

simultaneous innovation, multiple disciplines

### Encourage Innovation

- Reference Designs
- Design guides and IO enablement



### Performance of POWER architecture

amplified capability

### Engage community

- What is missing or incomplete?

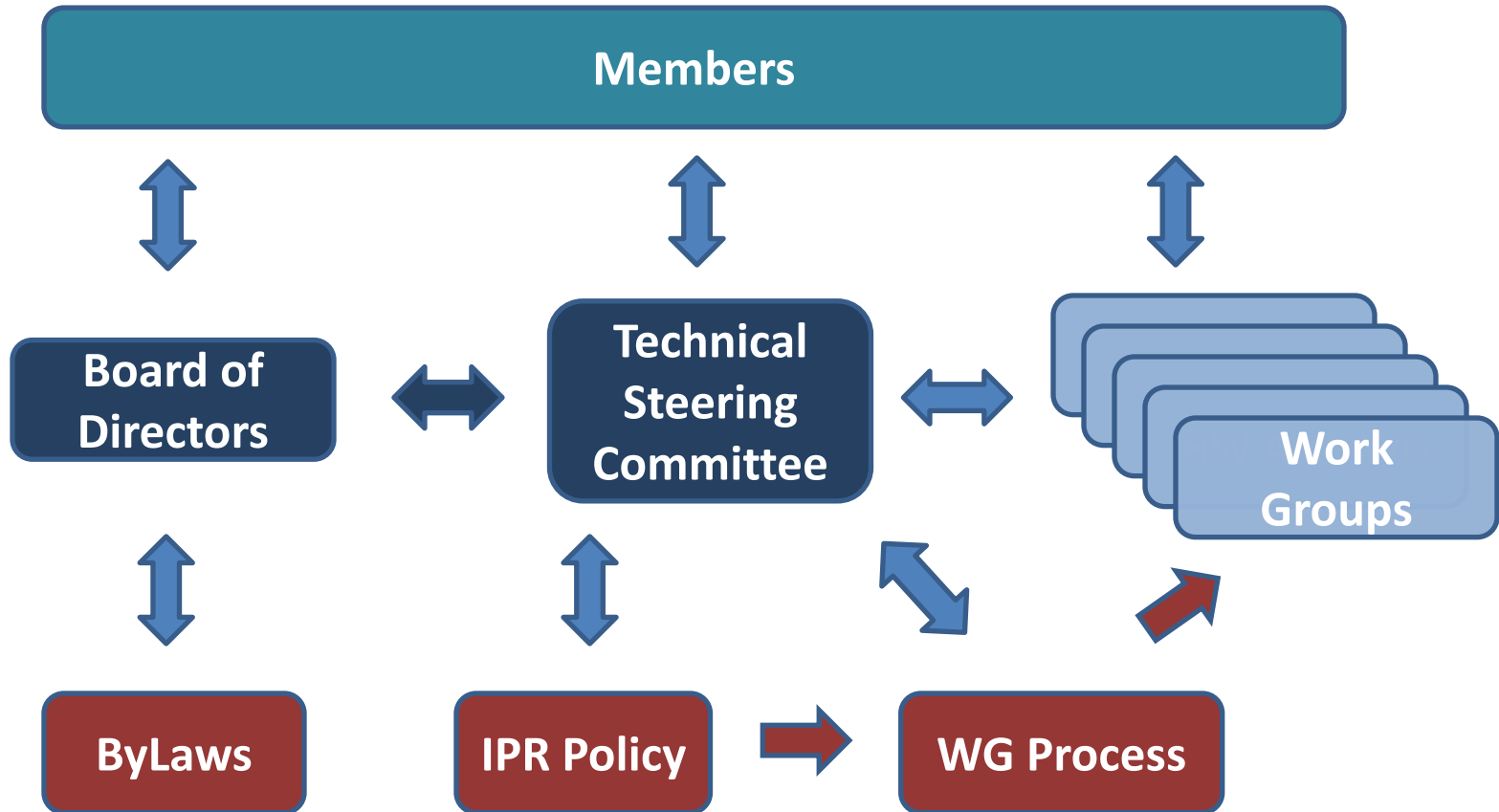


# Technical Agenda Update

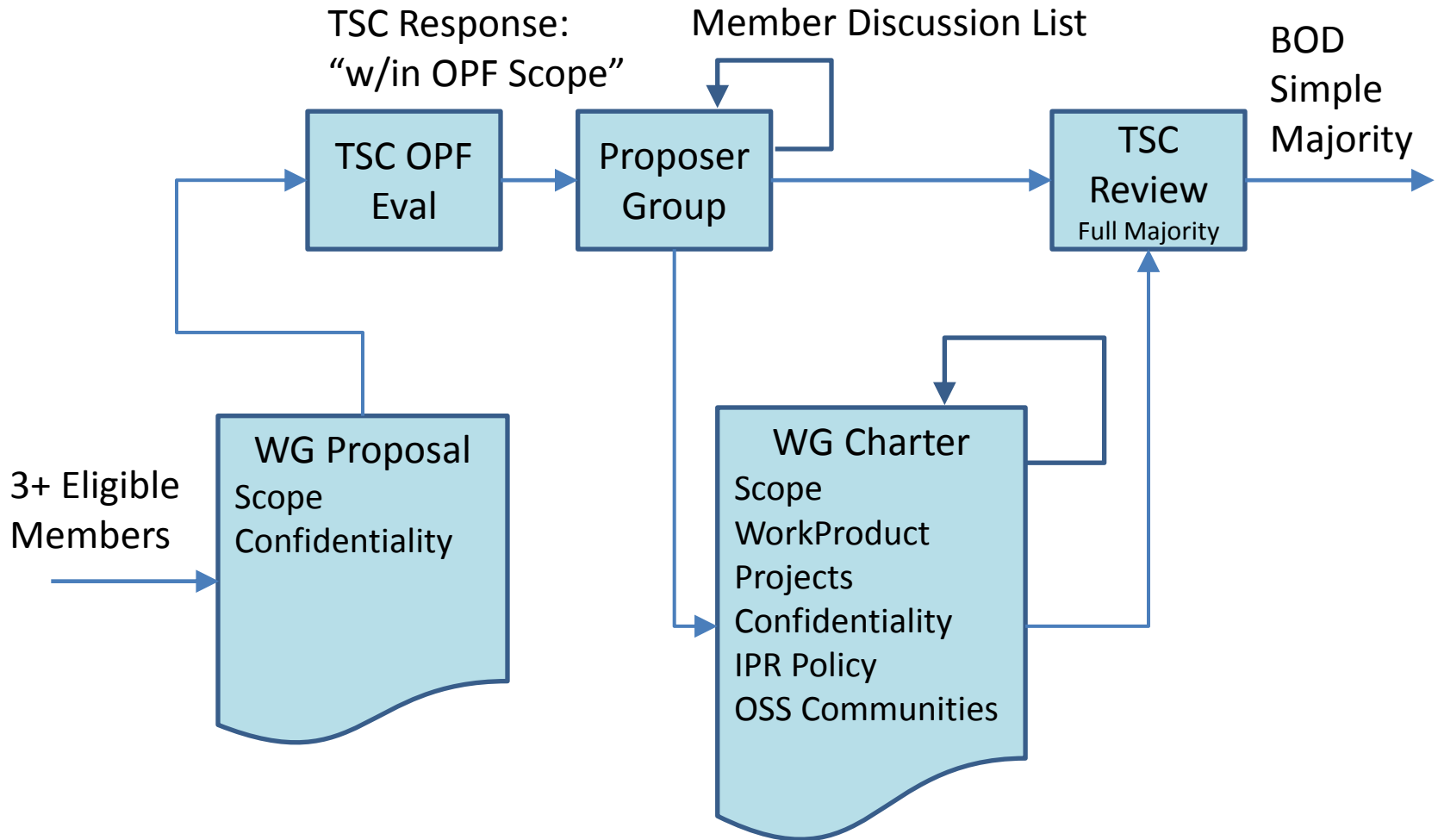
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- What are Foundation Workgroups
- Operations and getting involved
- Principal Workgroups
- Work Product Roadmap
  
- Application Solution Sets – Randall Ross
- Compliance Workgroup– Sandy Woodward
- IO Workgroup – Rakesh Sharma

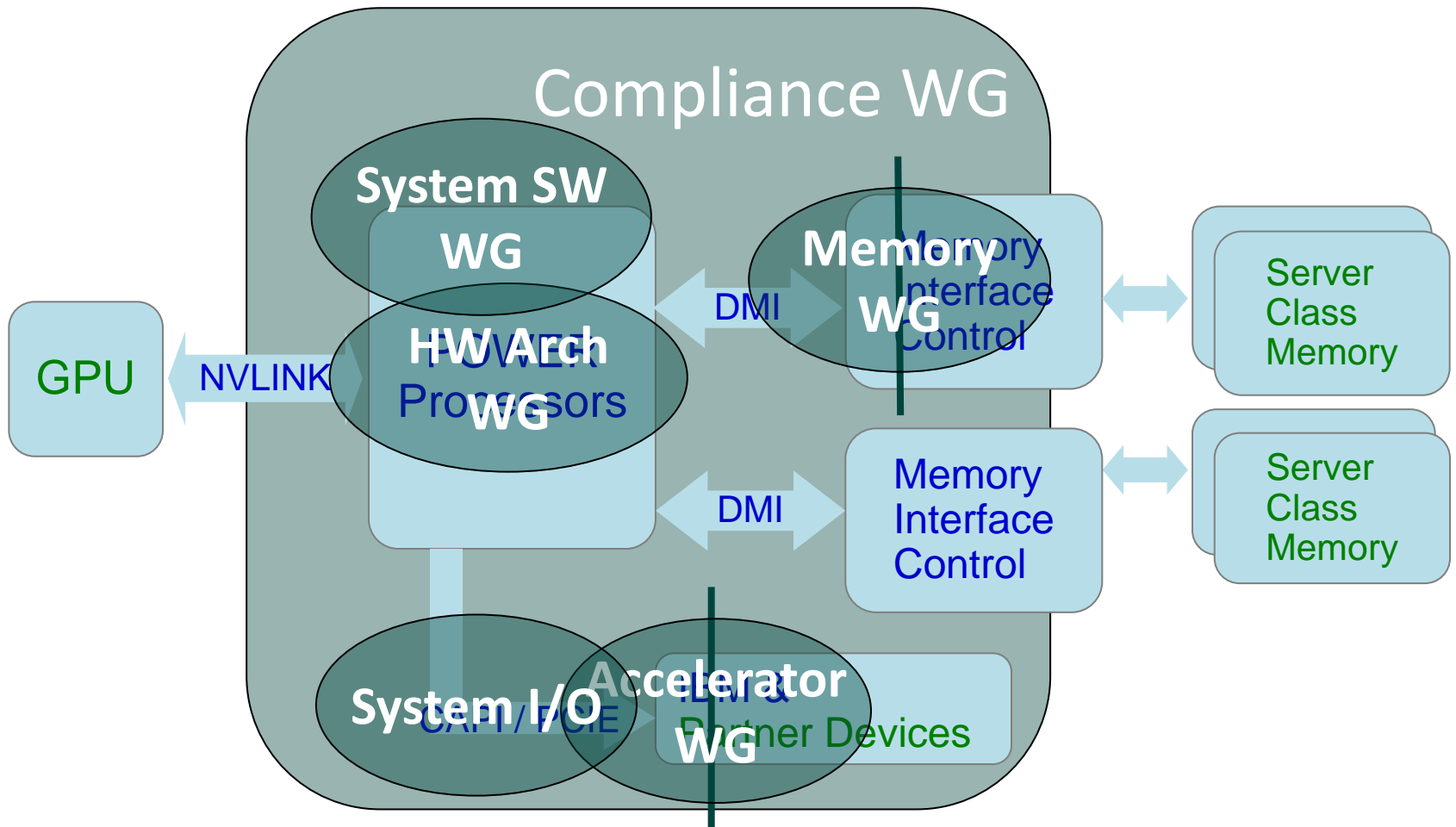
# OpenPOWER Foundation



# Workgroup Formation



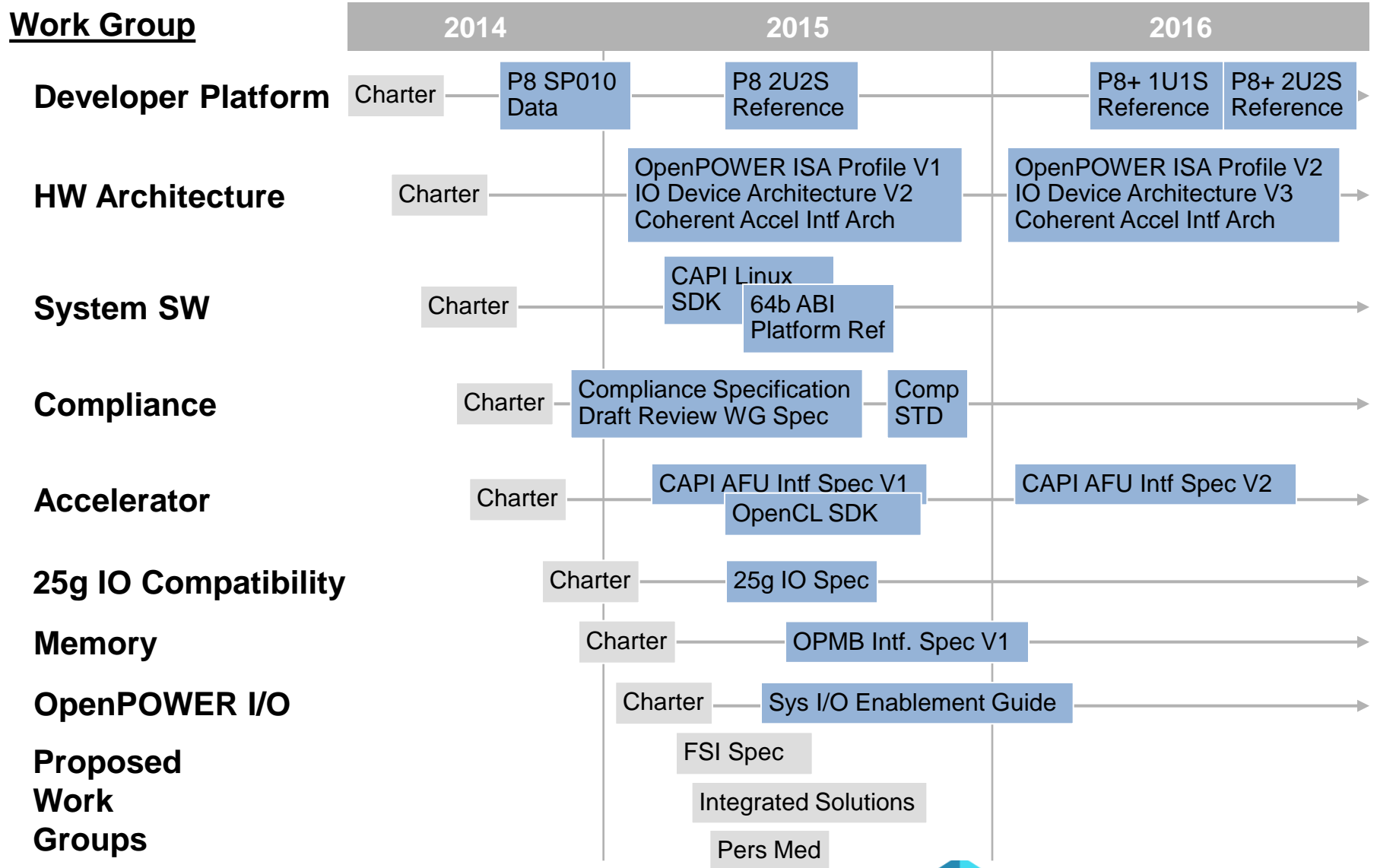
# Primary Workgroups



Built for Open Innovation



# OpenPOWER Work Group Roadmap



Proposed Roadmap - Subject to Change

Join the conversation at #OpenPOWERSummit



# Looking Forward

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- Execute Roadmap
- End-to-end solutions
- Rich solution sets using SW and HW
- Work well together

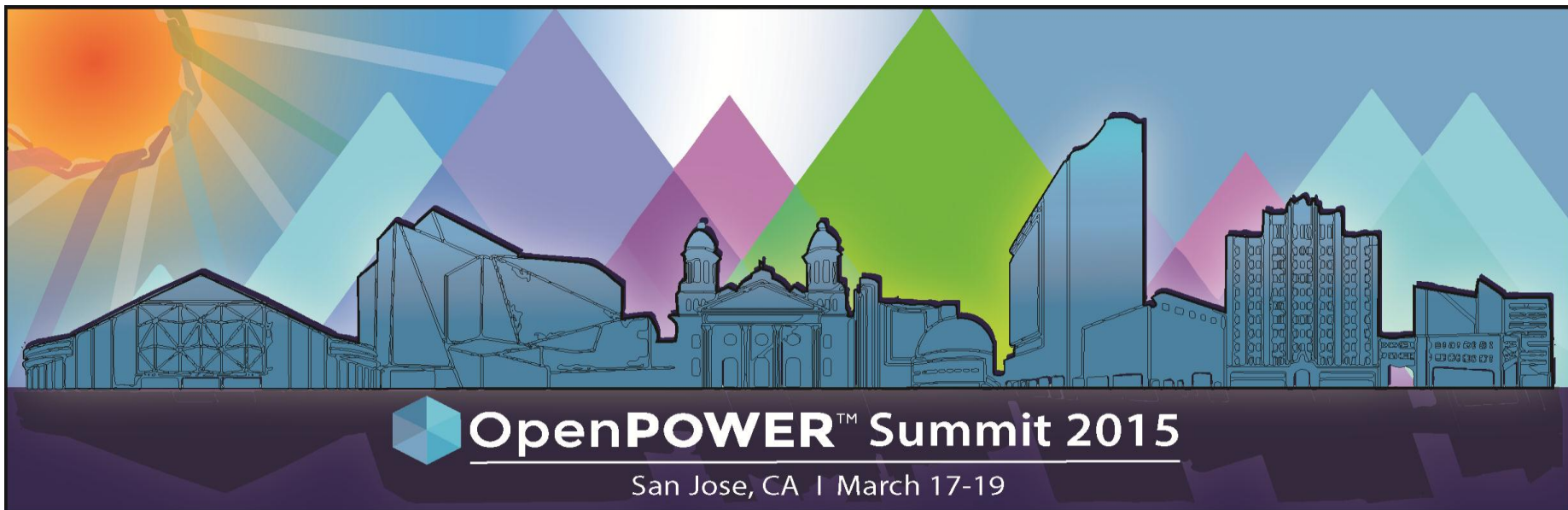




# Enabling Solution Set Development

*Randall Ross*

Canonical



# Our Strengths

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- Awareness of OpenPOWER is growing
- Fantastic list of members (a veritable “Who’s who”)
- Strong Hardware Story
- Good Foundation and Fundamentals in Place



# Big Opportunities

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- Bootstrap a strong community around solutions
- Build solutions across the full stack, from hardware to applications
- Solutions built from community diversity will be stronger than a monoculture
- Solutions optimized to harness the unique capabilities of OpenPOWER



# We've Done This Before

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- **Ubuntu's long history of community development**
- A very popular, very diverse, and very open system
- It's that way for a reason!
- OpenPOWER has a lot of the same 'feel'

# Where Are We?

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- Integrated Solutions charter subcommittee has been formed
- We have nearly 20 parties signed up already, very diverse
- We are writing and shaping the working group charter
- We are identifying areas of immediate focus



# Solution Domains

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- Currently:
  - E-commerce
  - Big Data
  - Genomics/Bioinformatics
- These are only the beginning...
- Can you think of more? Would they benefit from POWER?
- Tell us! Join us!

# Vision

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- A healthy ecosystem of Solution Sets that leverage OpenPOWER's key strengths and differentiators
- A strong story around OpenPOWER being a fully realized stack, from hardware to solutions (and everything in between)
- A place for not yet anticipated Solution Sets to emerge

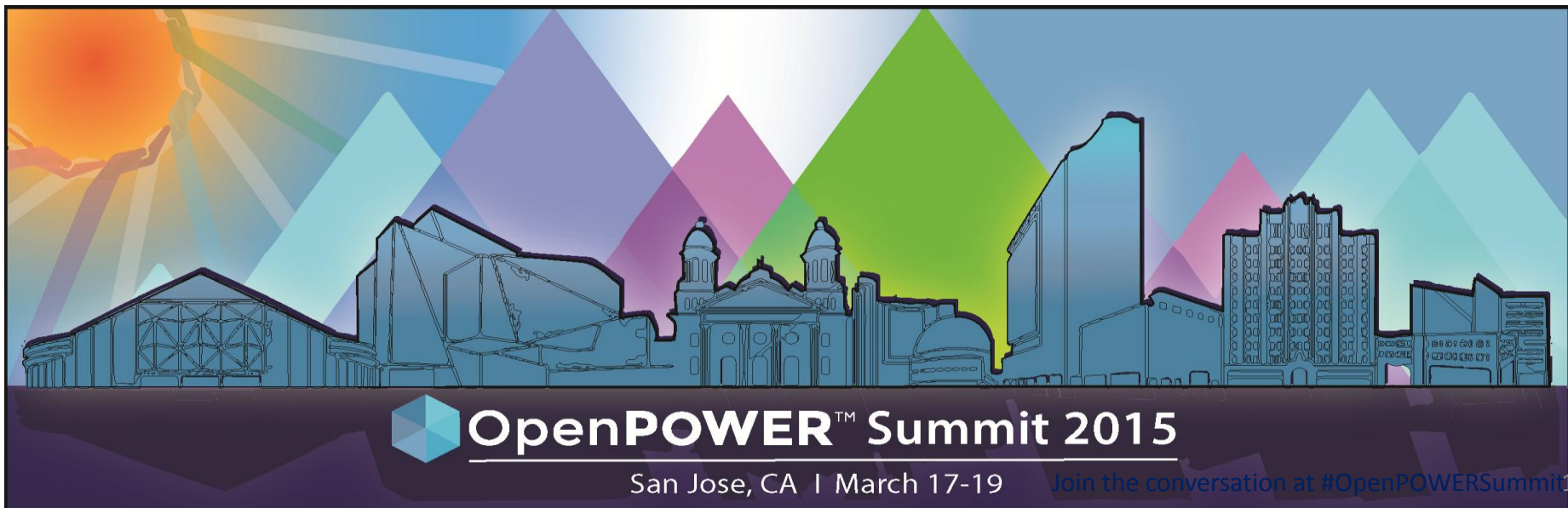


# Compliance

*Sandy Woodward*

IBM/OpenPOWER Compliance WG Chair

IBM Academy of Technology Member





# OpenPOWER Compliance

<b>Objective</b>	<p>Consistent approach to compliance</p> <ul style="list-style-type: none"><li>• From OpenPOWER Compliance Work Group</li></ul>
<b>Input</b>	<p>Input to Compliance Work Group</p> <ul style="list-style-type: none"><li>• Many OpenPOWER Specifications from other OpenPOWER Work Groups</li></ul>
<b>Work Products</b>	<p>Compliance Work Group Work Products</p> <ul style="list-style-type: none"><li>• OpenPOWER Architecture Compliance Definition Specification</li><li>• Many OpenPOWER Compliance Test Harness and Test Suite Specifications</li></ul>

# OpenPOWER Compliance Areas

OpenPOWER  
ISA Profile  
Compliance

OpenPOWER  
FPGA-based  
Accelerator  
Compliance

OpenPOWER  
IODA2  
Compliance

OpenPOWER  
LE ABI  
Compliance

Will add more Compliance areas

- As more OpenPOWER Work Groups develop specifications
- That need to be addressed by Compliance Work Group

OpenPOWER  
Firmware  
Interface  
Compliance

OpenPOWER  
25G Mode  
Compliance

OpenPOWER  
Memory Bus  
Compliance

OpenPOWER  
IO  
Requirements  
Compliance



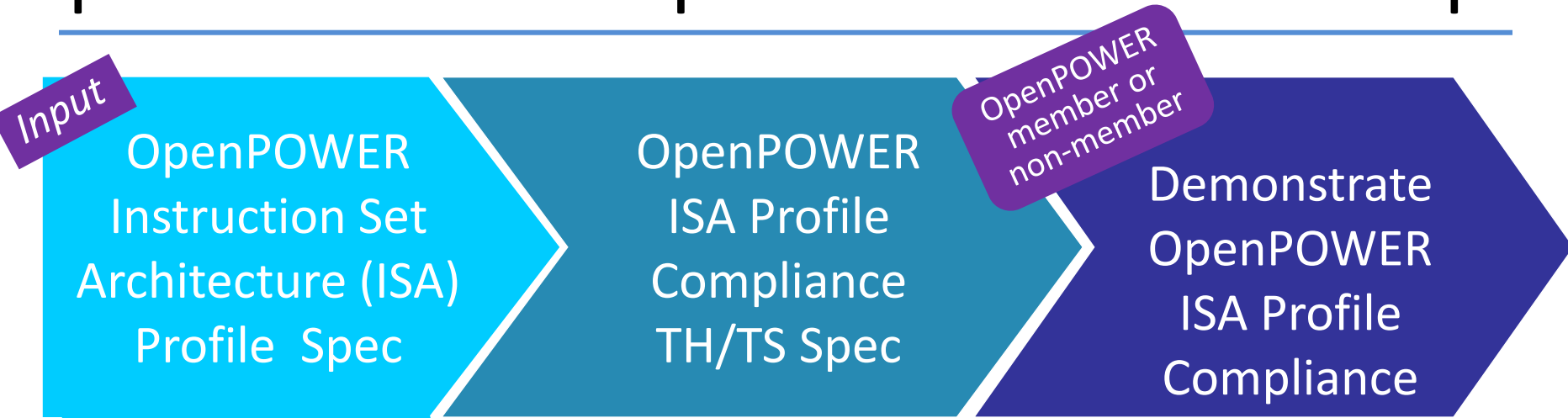
**OpenPOWER™**

# Architecture Compliance Definition Spec

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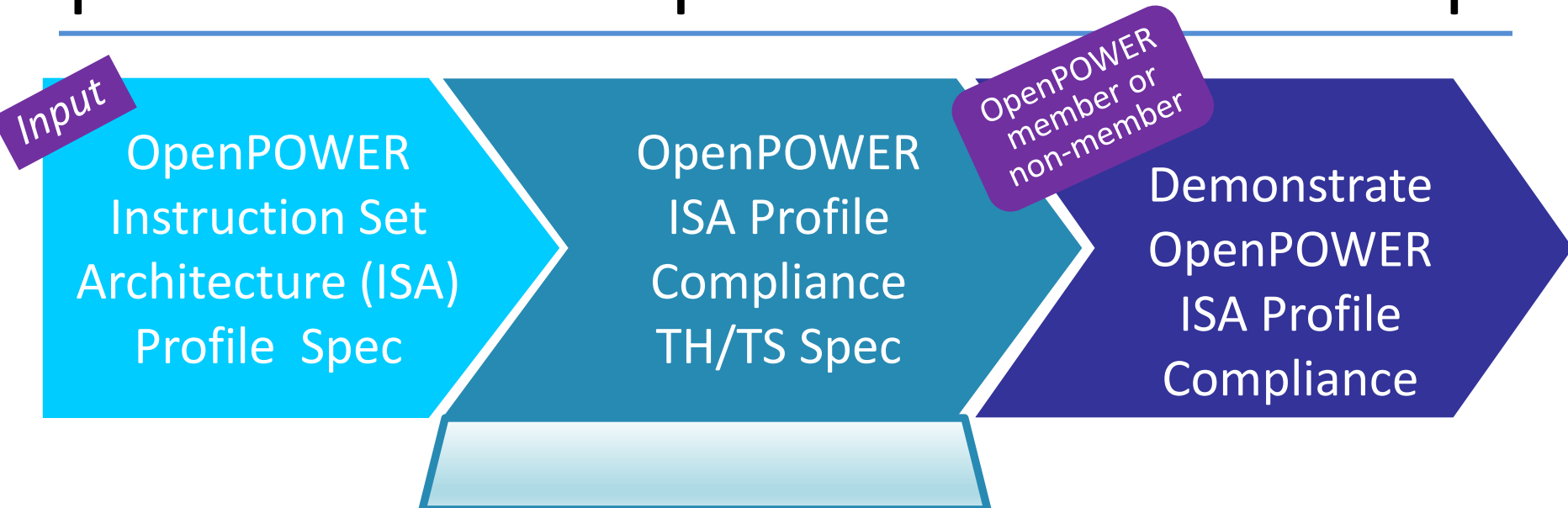
- **Documents the input OpenPOWER Specifications**
  - Provided by other OpenPOWER Work Groups
- **Provides overview of Compliance Test Harness and Test Suite (TH/TS) Specifications**
  - Developed in Compliance Sub-committees
- **Describes procedures on how to measure and document compliance**
  - Where to submit report for compliance

# OpenPOWER Compliance Process Example



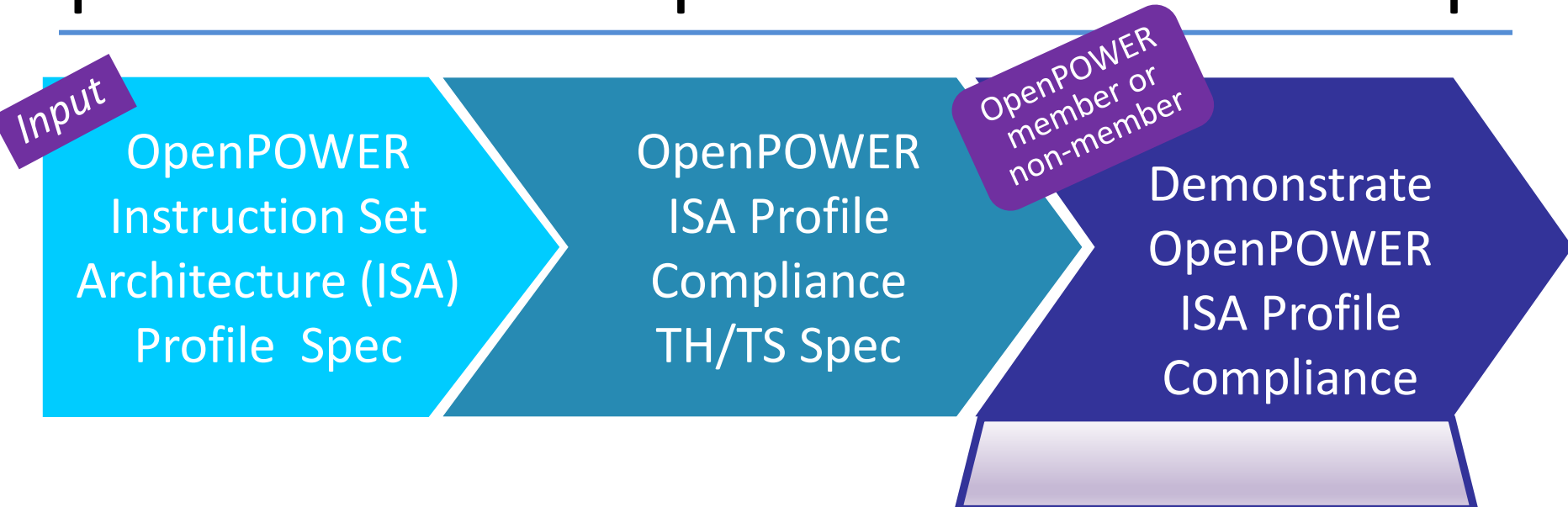
- **Provided by Hardware Architecture Work Group**
  - Define OpenPOWER ISA Profile architectural features, interfaces and facilities
  - Define required and optional elements for compliance

# OpenPOWER Compliance Process Example



- **Developed by Compliance Work Group**
  - Describe test harness to execute the test suite
  - Describe tests required to be in the test suite
  - Describe successful execution of the test suite
  - Describe what it means for an optional feature to fail

# OpenPOWER Compliance Process Example



- **Demonstrating OpenPOWER Compliance**
  - Generate test to be executed in test suite
  - Run the test suite and analyze the results
  - Fix test case errors, fix design and repeat
  - Document and submit Compliance Report

# OpenPOWER Architecture Compliance

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- Enables OpenPOWER hardware and software interoperability in the OpenPOWER Eco System
- Opportunity for OpenPOWER members and non-members to demonstrate compliance
- Looking forward to your participation!



# Developing and Integrating OpenPOWER IO Solutions

*Rakesh Sharma*

**IBM / OpenPOWER IO WG Chair**





# OPIO-WG Introduction

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- I/O plays critical role in any system or solution
  - Network Connectivity
  - Data Storage / Access
  - System/solution Acceleration
- Increasingly being used as differentiation
  - High throughput low-latency networking
  - Software Defined / Virtualized I/O for fast provisioning and optimizing utilization to lower cost
  - High performance and large capacity storage
- I/O is experiencing very dynamic landscape, exciting new technologies and business focus
- OPIO-WG is chartered to be a catalyst for growth of rich and vibrant OpenPOWER I/O eco-system

# OPIO-WG

The goal of OPIO-WG is, to drive collaboration to create rich I/O portfolio to serve the evolving needs of customers.

## Enablement

Porting  
Guides &  
Tools

I/O SW and  
Tests

## Compliance

Requirements

Specifications  
and Checklists

## Information Hub

OP I/O Portal

Public I/O List  
and  
Information  
Links

## Collaboration

I/O+System  
Integration

I/O Projects

## Innovation

OpenPOWER  
Differentiation

Bleeding edge  
I/O



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# OPIO-WG Work Products / Projects

Projects	Work Products
OPIO Enablement Assets	Documentation and information covering porting and tools
OPIO Information Hub	Public portal containing list of compliant I/O and links to product docs, specifications and business information
Compliance	Requirements Specifications and Checklists.
I/O Management Architecture and Guide	Configuration, FW update, Diagnostics and Monitoring Architecture and Implementation Guide
Advanced I/O Stacks	Enablement guide covering key technologies including I/O virtualization, virtual switches, NFV/SDN/Overlay Networking, RAID, SW Defined Storage, Flash and NVMe etc.

# OpenPOWER I/O Workgroup

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- Enables growth of OpenPOWER I/O Eco-System
- Opportunity for Systems, I/O and Solutions owners
- Looking forward to your participation!

# Getting Involved

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- Thank you!
- Foundation success needs your active participation
- Join, participate, contribute
- Email us at [tsc@openpowerfoundation.org](mailto:tsc@openpowerfoundation.org)