The Open Power Foundation and Opportunities in Weather/Climate Modeling

HPC Workshop Conference at ECMWF

Don Grice – IBM   and Jeremy Appleyard - NVIDIA

October, 2014

OpenPOWER™

Goal

The goal of the OpenPOWER Foundation is to **create an open ecosystem**, using the POWER Architecture to share expertise, investment, and validated and compliant server-class intellectual property to serve the evolving needs of customers.

- Opening the architecture to give the industry the ability to innovate across the full Hardware and Software stack
  - Includes SOC design, Bus Specifications, Reference Designs, FW OS and Hypervisor Open Source
- Driving an expansion of enterprise class Hardware and Software stack for the data center
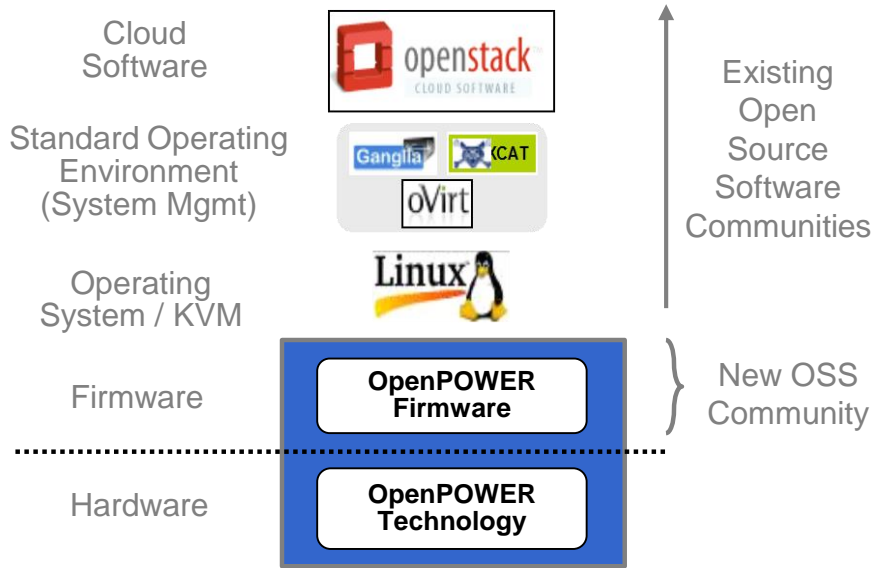- Building a vibrant and mutually beneficial ecosystem for Power

Platinum Members
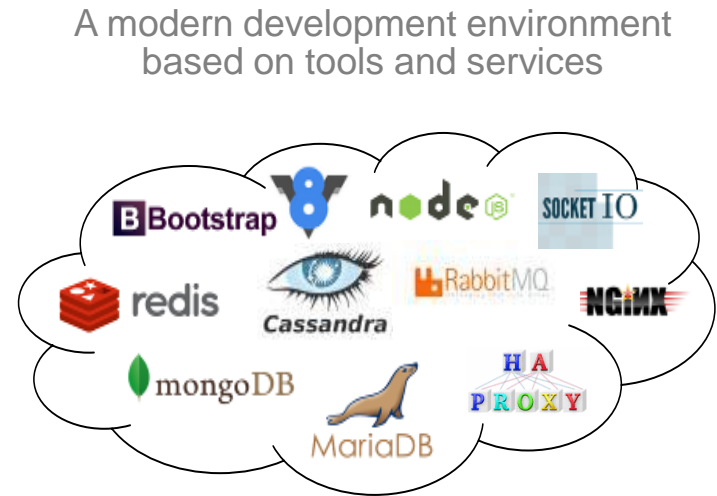
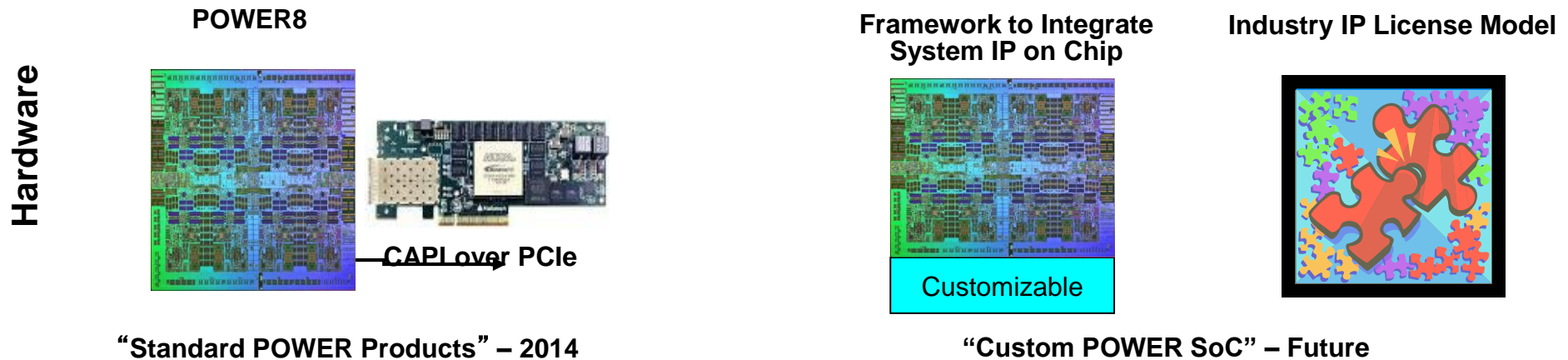ALTERA   Google   IBM   Mellanox   NVIDIA   SAMSUNG   Suzhou PowerCore Technology   TYAN

Proposed Ecosystem Enablement

OpenPOWER™

Power Open Source Software Stack Components

Software

Layer	
Cloud Software	openstack CLOUD SOFTWARE
Standard Operating Environment (System Mgmt)	Ganglia · XCAT · oVirt
Operating System / KVM	Linux
Firmware	**OpenPOWER Firmware**
Hardware	**OpenPOWER Technology**

Existing Open Source Software Communities

} New OSS Community

System Operating Environment Software Stack

A modern development environment based on tools and services

BBootstrap · node · SOCKET IO · redis · Cassandra · RabbitMQ · NGINX · mongoDB · MariaDB · HA PROXY

Multiple Options to Design with POWER Technology Within OpenPOWER

Hardware

POWER8

—**CAPI over PCIe**

"**Standard POWER Products**" – 2014

Framework to Integrate System IP on Chip

Customizable

Industry IP License Model

"**Custom POWER SoC**" – Future

OpenPOWER Overview

OPEN Ecosystem Community

Complementary "For Profit" Ecosystem

Development & Specification

Architecture Specification Group

Open Source Software
Linkages to other groups
Development workgroups

System Design Group
Specifications
Reference Design

Chip Design Group
Open IP Blocks
Interface Specifications

Development Groups

Numerous Participants

Store

Fee Based Component Examples
Chip IP
IBM SW Stack
Member SW Stack
Power on a card or board

To Ensure Compliance
All offers must be validated consistent
with architecture and interface
specifications

OpenPOWER Compliance

Building collaboration and innovation at all levels
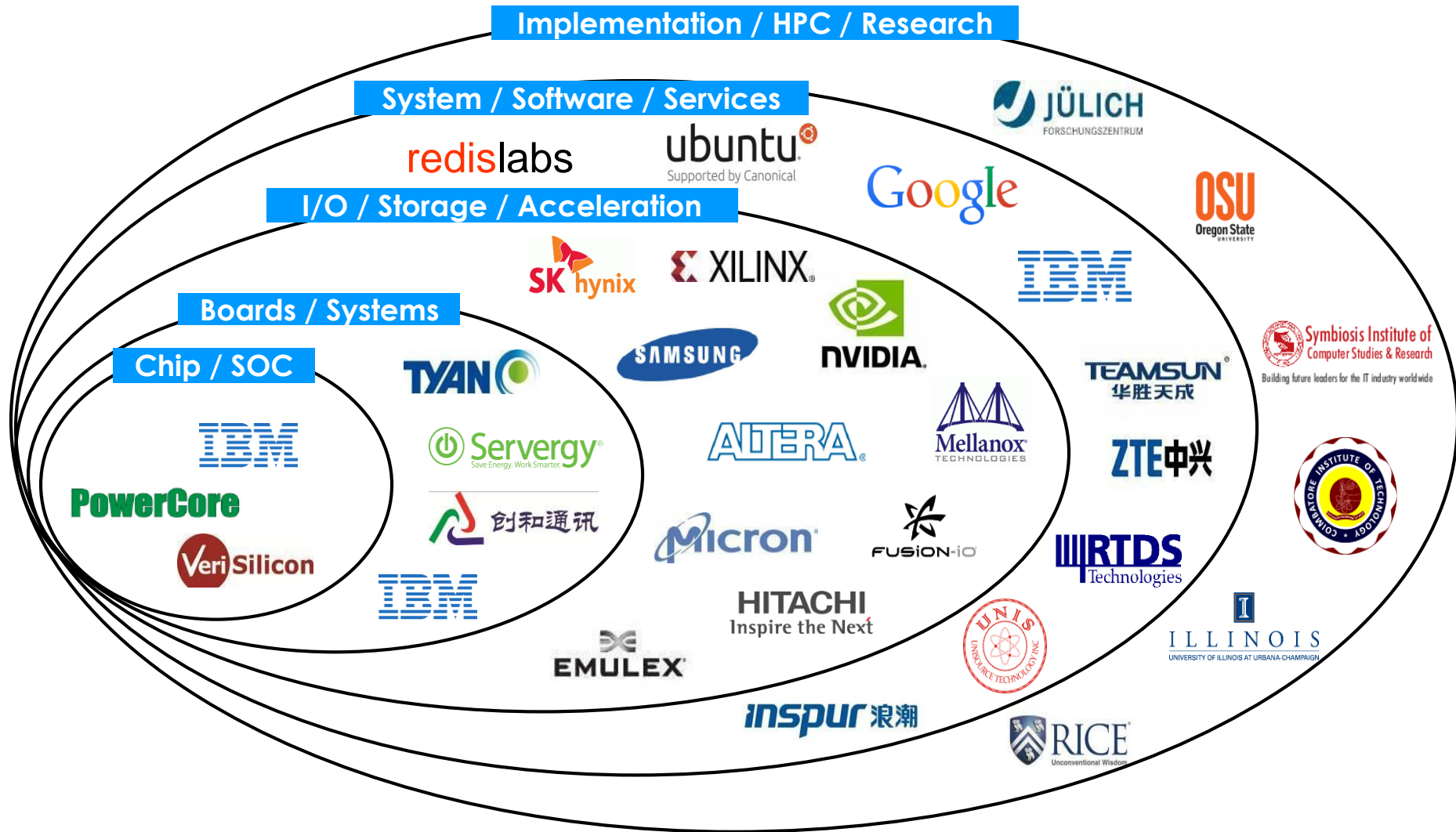
Welcoming new members in all areas of the ecosystem
100+ inquiries and numerous active dialogues underway

Thank you!