OCP CHINA DAY | June 25th 2019 Beijing

Powering the Open Data Center Revolution

Wilson Guo | Sr. Technology Director

25th June, 2019

About Inspur

- Top 3 Server Vender Worldwide
- Leading Full Stack AI Solution Provider
- Leading Open Data Center Products and Solutions Provider

JDM Model

J = **J**oint digital collaboration with customers & partners

D = **D**esign/ **D**evelopment/ **D**elivery

M = **M**anufacture
Online orders,
Fast customization

AI Full Stack Solution

AI Applications Acceleration	GPU/MIC/FPGA	
Optimized AI Framework	Caffe-MPI	
AI Management Software	AI Station	T-Eye
AI Hardware Products	AGX-5	AGX-2 FPGA

Platinum Member of OCP

ODCC OCP

Open Platform: Making Ecosystem More Open

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Embrace Open

Open Hardware

Over billion deployment

Millions of nodes deployed

OpenPOWER

Open Power

Open Software

OpenBMC

DMTF Redfish

Rack Level Management

Deliver Value

Open Design Platform

- Low Barriers to Entry
- Accelerate Innovation
- Manage Power Consumption
- Decrease TCO
- Lower Failure Rate

Open to Customers

Tencent · Baidu · Alibaba · NetEase 163.com · Sohu.com · LeTV · 360 · China Telecom · Sina 新浪网 · 华数 WASU

Hardware Management for OCP Rack

Runs OpenBMC on OCP Compute Node

Implement Redfish OCP Baseline for compute node and pass the dmtf redfish plugfest

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inspur

OPEN Compute Project

OpenRMC Northbound API Specifications v0.1 DRAFT

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Alfie Lew (Inspur)

Jan 4, 2019

8.1.1. SERVICE ROOT

Service Root resource is the entry point to the Redfish interface. The property details are available in the ServiceRoot.xml metadata file.

GET

Request:

```
GET /redfish/v1
Content-Type: application/json
```

Response:

```
{
 "@odata.context": "/redfish/v1/$metadata#ServiceRoot.ServiceRoot",
 "@odata.id": "/redfish/v1/",
 "@odata.type": "#ServiceRoot.v1_1_1.ServiceRoot",
 "Id": "RootService",
 "Name": "Root Service",
 "Description": "description-as-string",
 "RedfishVersion": "1.1.0",
 "UUID": "92384634-2938-2342-8820-489239905423",
 "Chassis": {
  "@odata.id": "/redfish/v1/Chassis"
 },
 "Managers": {
  "@odata.id": "/redfish/v1/Managers"
 },
 "EventService": {
  "@odata.id": "/redfish/v1/EventService"
 },
 "Tasks": {
  "@odata.id": "/redfish/v1/TaskService"
 },
 "TelemetryService": {
  "@odata.id": "/redfish/v1/TelemetryService"
 },
 "Registries": {
  "@odata.id": "/redfish/v1/Registries"
 },
 "UpdateService": {
  "@odata.id": "/redfish/v1/UpdateService"
 },
 "Links": {}
}
```

8.1.7. UPDATESERVICE

UpdateService resource represents the properties required to invoke the software/firmware update.

Note: ***In the current release, only the Manager Resources can be updated.***

GET

Request:

```
GET /redfish/v1/UpdateService
Content-Type: application/json
```

Response:

```
{
 "@odata.type": "#UpdateService.v1_0_2.UpdateService",
 "Id": "UpdateService",
 "Name": "Update service",
 "Status": {
  "State": "Enabled",
  "Health": "OK",
  "HealthRollup": "OK"
 },
 "ServiceEnabled": true,
 "Actions": {
  "#UpdateService.SimpleUpdate": {
   "target": "/redfish/v1/UpdateService/Actions/SimpleUpdate",
   "@Redfish.ActionInfo": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
  },
 },
 "@odata.context": "/redfish/v1/$metadata#UpdateService/$entity",
}
```

ACTION VIA POST: SIMPLEUPDATE

The UpdateService resource specifies that firmware can be updated by POSTing to the SimpleUpdate resource. The parameters that can be passed in the request content is described in the SimpleUpdateActionInfo resource.

```
  "#UpdateService.SimpleUpdate": {
   "target": "/redfish/v1/UpdateService/Actions/SimpleUpdate",
   "@Redfish.ActionInfo": "/redfish/v1/UpdateService/SimpleUpdateActionInfo"
  },
```

Request:

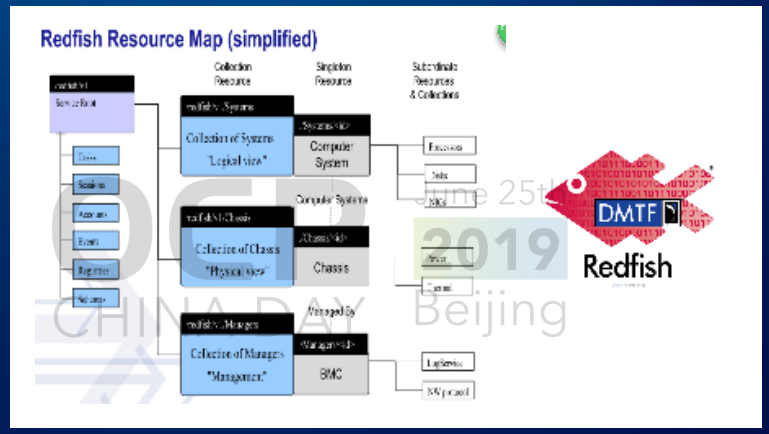
```
GET /redfish/v1/UpdateService
Content-Type: application/json
```

Request Content:

```
{
      "ImageURI": "http://10.0.0.1/images/rmm_image.deb",
      "Targets": [ "/redfish/v1/Managers/BMC" ],
      "TransferProtocol": "HTTP"
}
```

Inspur OpenBMC Key Features

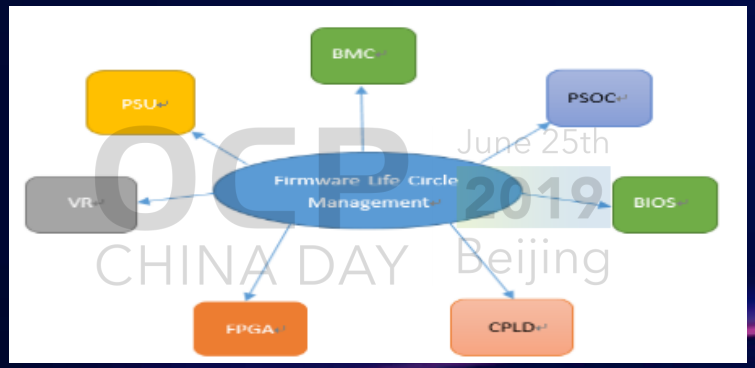
WebUI to monitor system status



Redfish/Restful Function, support Redfish OCP Baseline Profile

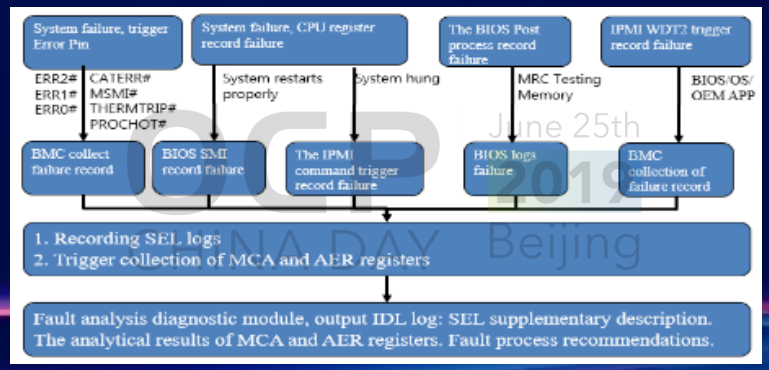
Component **Firmware Life cycle Management**

1. Version auto discovery
2. Intelligent update for BMC,BIOS,CPLD,FPGA etc.
3. Firmware rollback when error occurs.



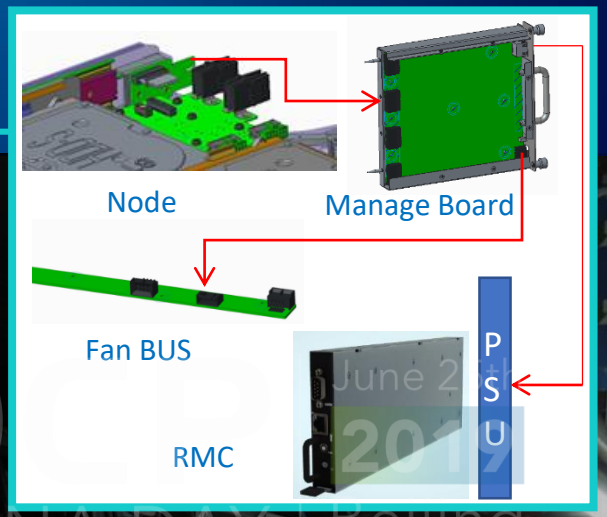
Fault Diagnosis

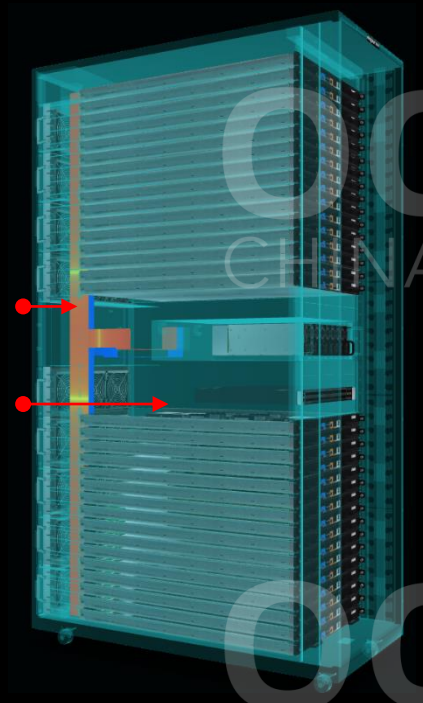
1. Diagnosis system fault directly
2. Output the detailed fault records and recommendations
3. BMC subsystem fault diagnosis.



Inspur OpenRack Overview

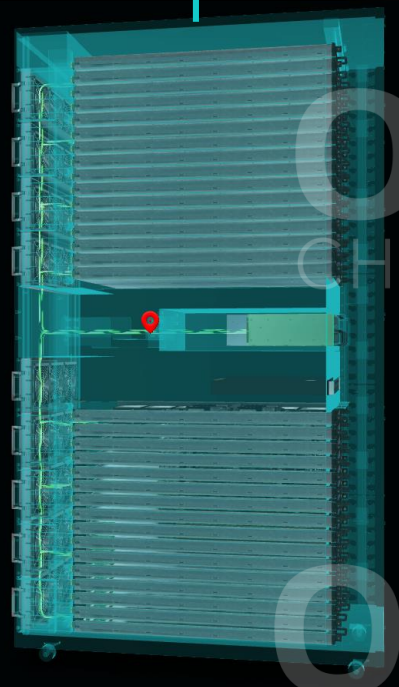
Inspur OpenRack Overview



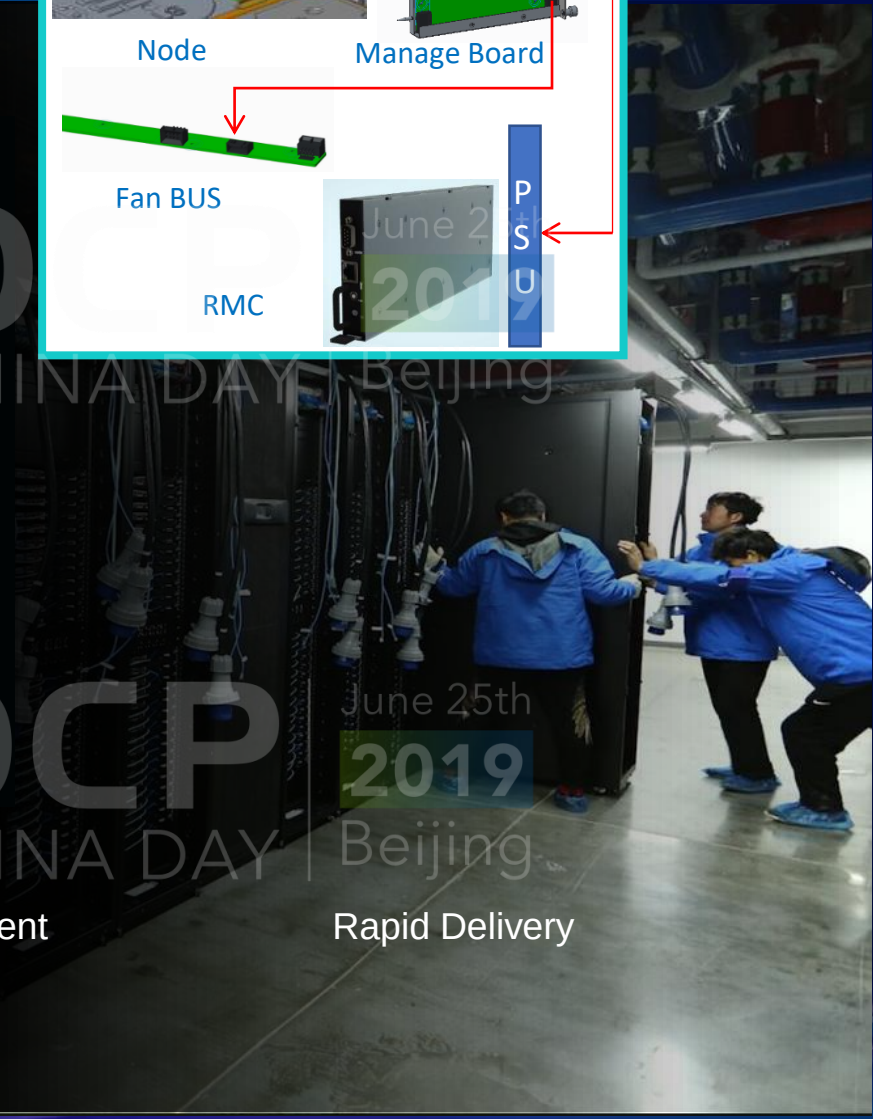


Centralized Power

Centralized Cooling

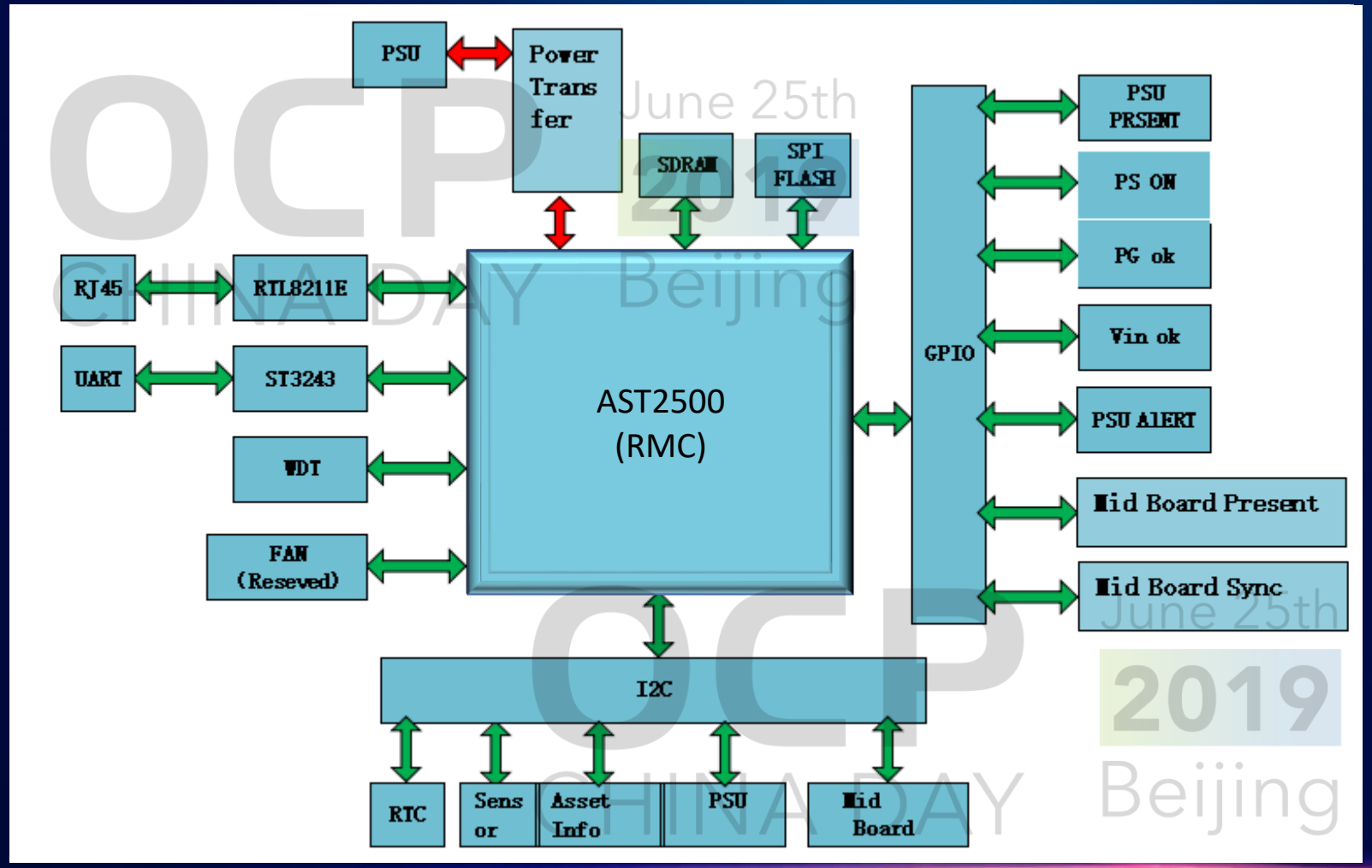


Centralized Management



Rapid Delivery

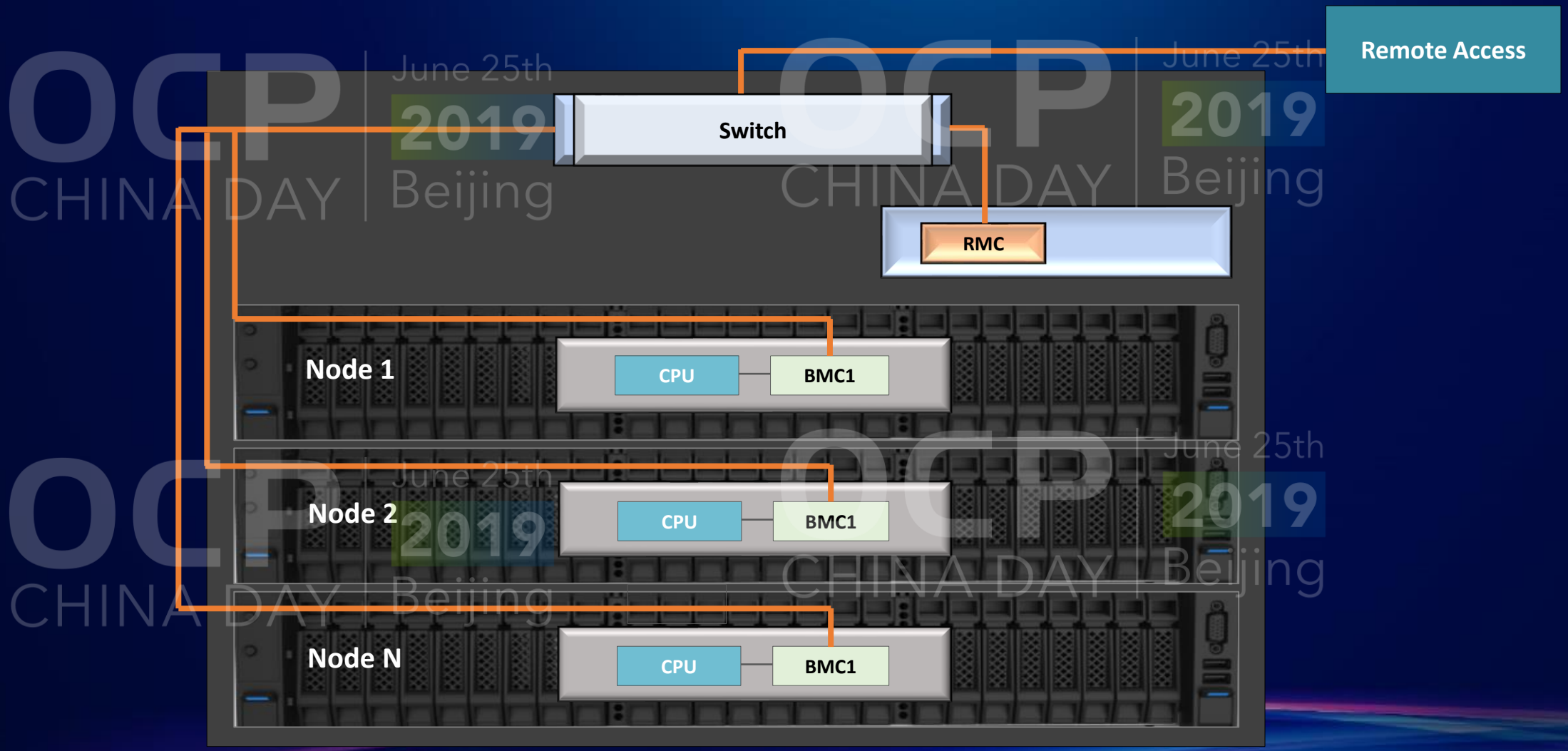
RMC Diagram


PSU
Power Transfer
SDRAM
SPI FLASH
RJ45
RTL8211E
UART
ST3243
WDT
FAN (Reseved)
AST2500 (RMC)
GPIO
PSU PRSENT
PS ON
PG ok
Vin ok
PSU ALERT
Mid Board Present
Mid Board Sync
I2C
RTC
Sensor
Asset Info
PSU
Mid Board

Connections Between RMC & BMC

- RMC: Rack Management Controller. MMC: Medium Management Controller. BMC: Baseboard Management Controller. FCB: Fan Control Board. PCB: Power Supply Control Board.
- RMC have two networks for remote management & connection to BMC. BMC have two networks in node for remote management & connection to RMC
- MMC uses IPMB over I2C connections with BMC and uses I2C connections with RMC for communications.
- MMC uses Tach/pwm/GPIO connections with FCB for fan management.

Connections Between RMC & BMC



Open

Low Barriers to Entry

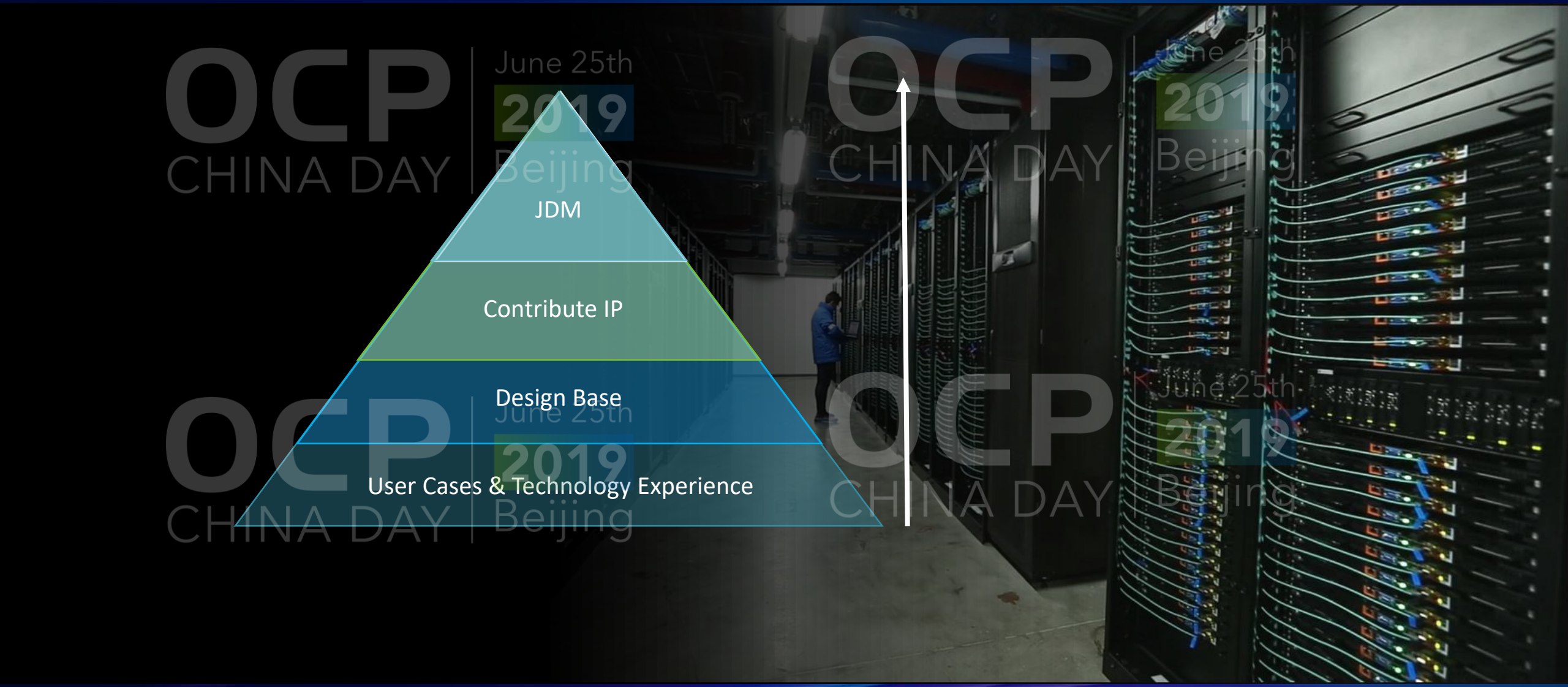
Accelerate Innovation

Decrease TCO

Manage Power Consumption

Lower Failure Rate

Inspur OCP Total Value Solution



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Thank you