

REDFISH & PYTHON

REDFISH

A standard way to manage servers

Session Agenda

- **Light out management**
- **Intelligent Platform Management Interface**
- **Redfish**
- **The need for automation / scalability**
- **Python Redfish**

What is Lights-out management ?



Lights-out management

Remote device

- **Monitoring**
- **Management**

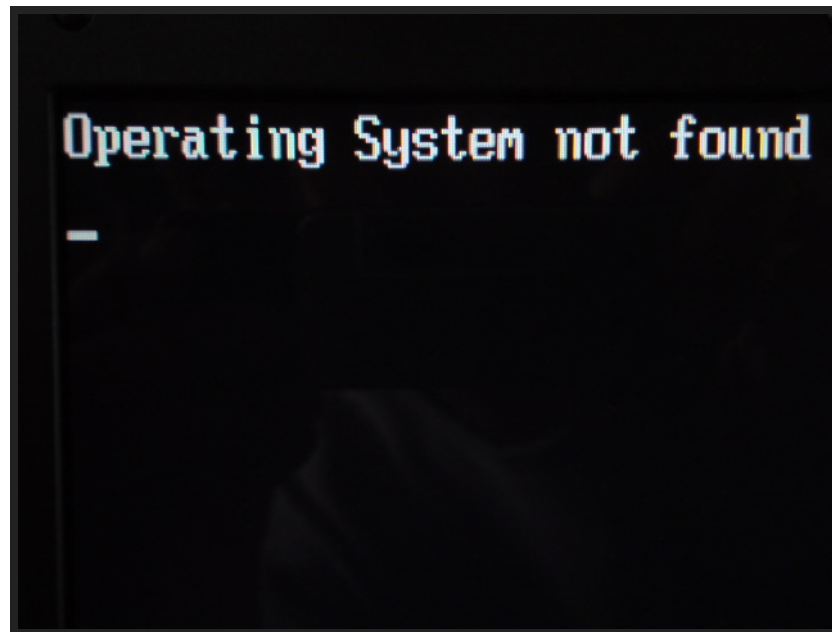
Lights-out management

Regardless device power



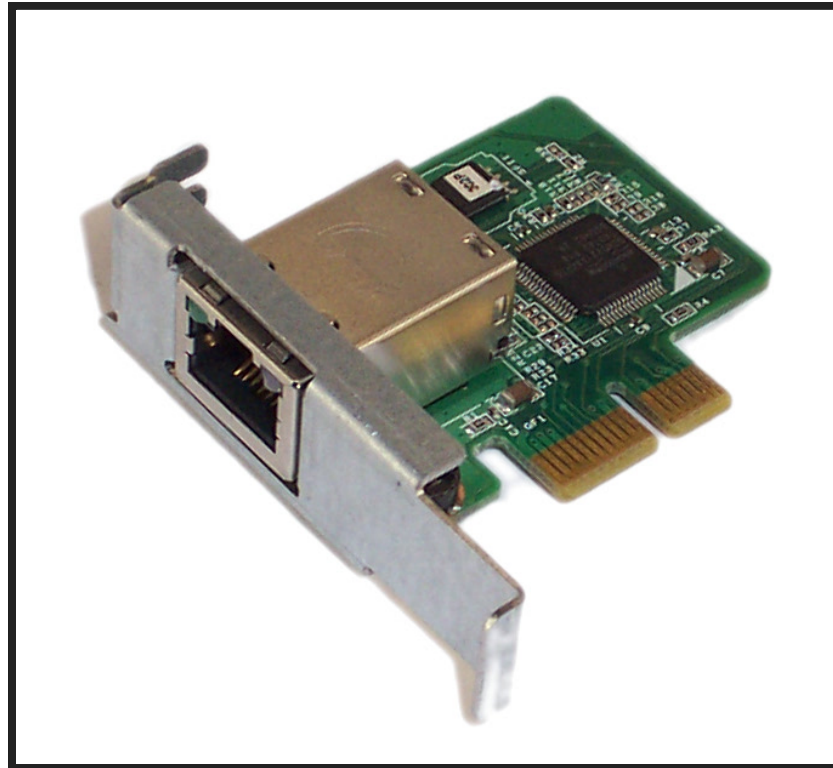
Lights-out management

Regardless operating system availability



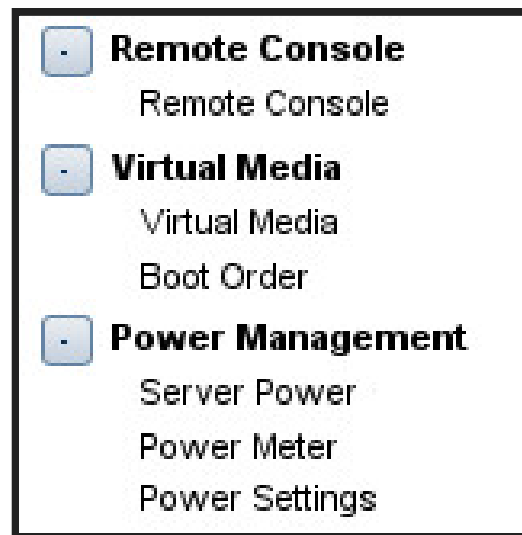
Lights-out management

How is this done ?



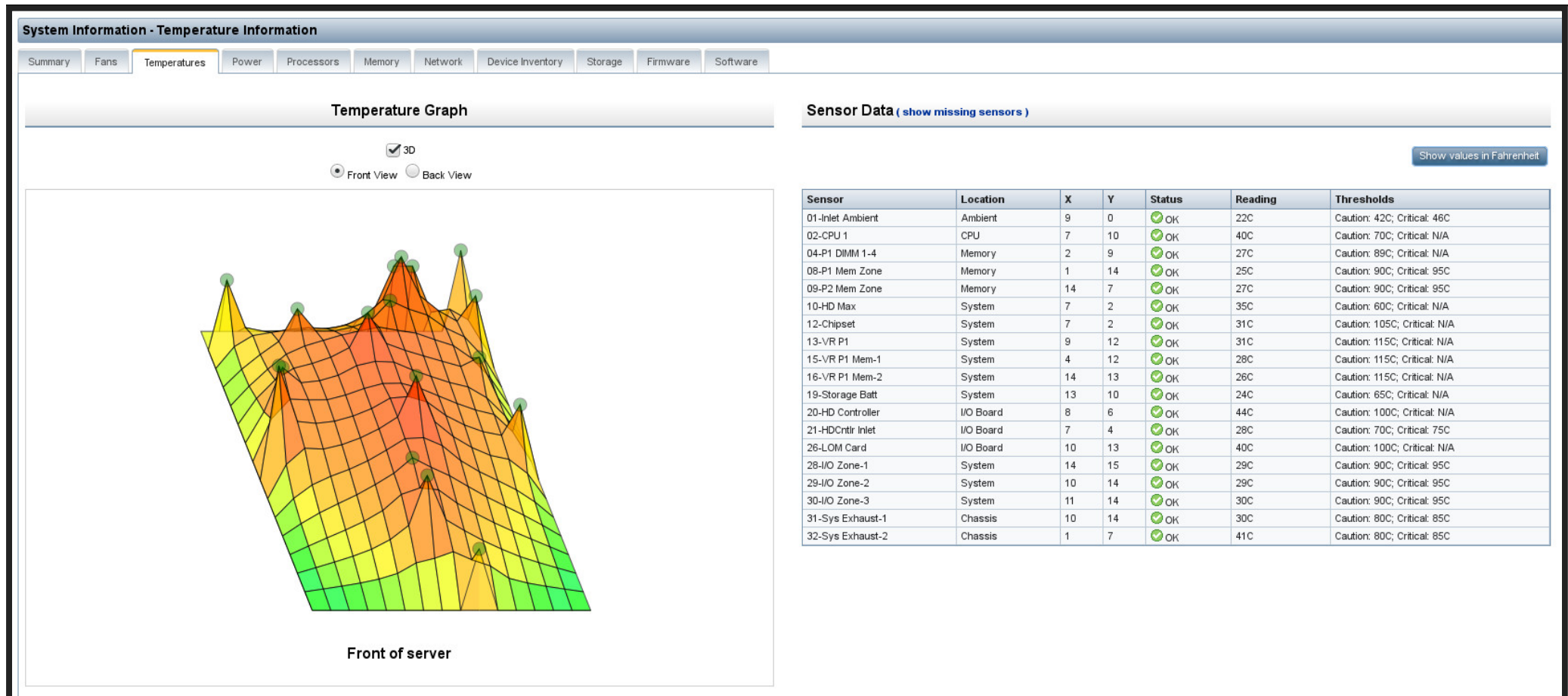
Lights-out management

Main management possibilities



Lights-out management

Example temperature monitoring



Lights-out management

Proprietary solutions



- **AMI MegaRAC**
- **Cisco CIMC**
- **Dell DRAC**
- **HP ilo**
- **IBM Remote Supervisor Adapter**
- **Oracle ILOM**

Intelligent Platform Management Interface

A step to unify light out management

- **Currently the only way to manage heterogeneous hardware**
- **Available from client tools thanks to IPMIutil tool**

Intelligent Platform Management Interface

But with some constraints

- **Low level specifications**
- **Hard to use for end users**
- **Not all light out features supported and hard to extend**
- **Security concerns**
- **Complex to manage on high integrated servers**

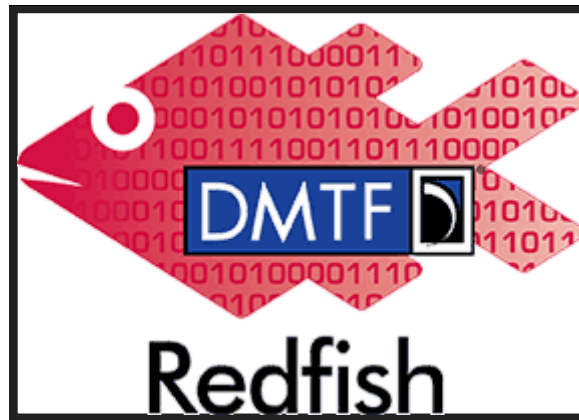
The need for automation / scalability



The need for automation / scalability

- **Scale out servers architecture with commodity servers**
- **Repetitive configuration**
- **End user friendly**
- **Available from anywhere, with any platform**
- **Security**
- **Software Defined Infrastructure market trend**

Here comes Redfish !



What is Redfish

A powerful and user friendly IPMI alternative

- **Standard proposed by the Distributed Management Task Force**
- **Initially promoted by Dell, Emerson, HP and Intel**

Redfish v1.0 (3rd Aug 2015)

Content

- **Light out management using a Rest API specification**
- **JSON / Odata based schemas to describe resources**
- **A mockup**
- **Documentation, white papers, FAQ**
- **Available online at <https://www.dmtf.org/standards/redfish>**

Redfish real life examples

- **Using simple http get**
 - **Grab Bios version**
 - **Get server model and cpu models**
- **Using simple http post**
 - **Set a bios parameter using a simple http post**
 - **Reset server**
 - **Change next boot to the network**

all of this, whatever the platform

HP Redfish 1.0 hardware support

This is available now !

- **Ilo v4**
- **Firmware 2.30**

Python Redfish



A python library to manage Redfish

- **Open source project**
- **Initiated by a small group of people (Bruno, Devenanda, René, Sammer, Vincent)**
- **Available at <https://github.com/uggla/python-redfish>**

Python Redfish

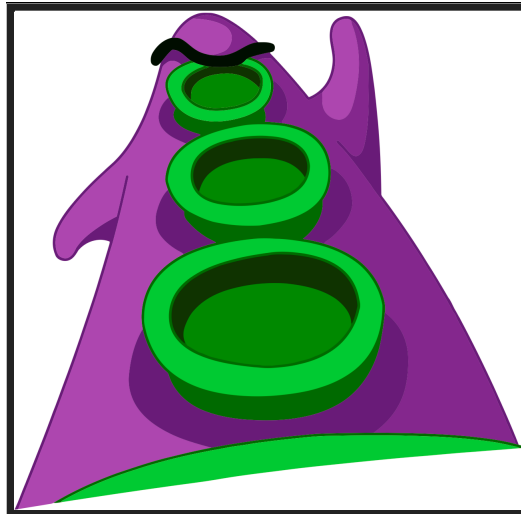
Initial goals

- **Provide a library to easily add Redfish support into applications**
- **Provide a Redfish client tool based on the library**

Python Redfish

Ultimate goals

- **Integration into Openstack Ironic**
- **Integration into CMDB tools (cf [Alexandria](#) project)**
- **World domination ! :)**



Python Redfish



Status

- **Project in infancy**
- **Core library development ready**

Python Redfish

Status

- **First power management features implemented**
- **Bios management features implemented**
- **Code samples**
- **Client development in progress**

Python Redfish

Status

- **Docker file producing a ready to use container with Redfish mockup.**
- **python-redfish dependencies rpm available into Mageia and Fedora**
- **This presentation**

Contributors welcomed

Python Redfish

Tested on

- **Redfish 1.0 mockup / proliant**
- **Redfish 0.9.5 mockup / proliant / moonshot**

Python Redfish

External dependencies



- **Requests**
- **tortilla** (thx Damien)

Python Redfish

Library usage example

- **Import**

```
import redfish
```

- **Create a redfish object**

```
remote_mgmt = redfish.connect(URL, USER_NAME, PASSWORD, verify_cert=False)
```

- **Retrieve API version**

```
remote_mgmt.get_api_version()
```

- **Retrieve power status**

```
remote_mgmt.Systems.systems_list[0].get_power()
```

Python Redfish

Library usage example

- **Get bios parameter**

```
remote_mgmt.Systems.systems_list[0].bios.get_parameter("AdminPhone")
```

- **Set bios parameter**

```
remote_mgmt.Systems.systems_list[0].bios.set_parameter("AdminPhone", "xxx")
```

- **Reboot system**

```
remote_mgmt.Systems.systems_list[0].reset_system()
```

THANK YOU

- **René Ribaud <rene.ribaud@hp.com>**