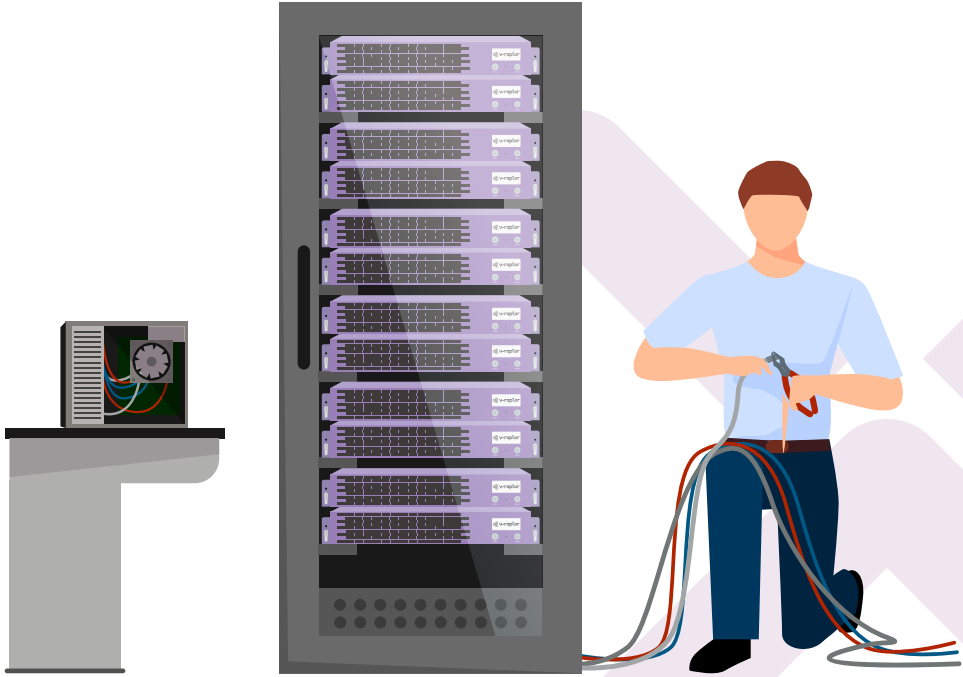


XSLAB 엑세스랩(주) Company Profile



Contents



| | |
|--------------|----|
| Introduction | 03 |
| Business | 11 |
| Technology | 17 |
| References | 22 |

Introduction



XSLAB 엑세스랩(주)

Redesign
Legacy
Computer.

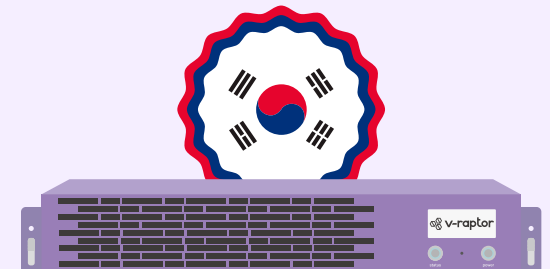
| | |
|------------------|---|
| E-Mail | sales@xslab.co.kr |
| Phone | 02-6952-9974 |
| Site | www.xslab.co.kr |
| Blog | blog.naver.com/xslab |
| Add. | 701, ACE Techno Tower 8, 11, Digital-ro 3 gil, Guro-gu, Seoul, Korea. |
| Est. Date | 2017.08.24. |

XSLAB has been developing the first low-power many-core ARM server in Korea for more than 12 years. Befitting its reputation as Korea's first ARM server company, we provides everything from HW to SW. We boast the best technology and expertise across the entire server industry, including the cloud. XSLAB would proudly announces the advent of a new server era in Korea.

“

We are the first company to produce **low-power, high-efficiency ARM servers** from HW to SW in Korea.

”



Introduction



CEO



Myoung-hwan (FunFun) Yoo

CEO of XSLAB Inc.
 (Former) NIRS Cloud Tech. Committee Member
 (Former) Seoul Guro-gu Policy Advisory Member
 (Former) NAVER D2 Startup Factory Mentor
 (Former) Adj. Professor of Hanyang Univ. SW div.
 (Former) Ministry of Science SW Maestro Mentor

Primary Members

| | | | |
|-----------------|--------------------|-----------------------------------|--------------|
| CTO | R&D | ARM server HW Dev. | 18+yr Career |
| CFO | Finance Management | B.Laws in Seoul Nat'l Univ. | 15+yr Career |
| Director | Embedded SW | Industrial/Automobile Embedded SW | 15+yr Career |
| Director | Intra. SW | Ph.D in CSE | 5+yr Career |
| Director | Web/Data SW | B.S. in CSE | 12+yr Career |

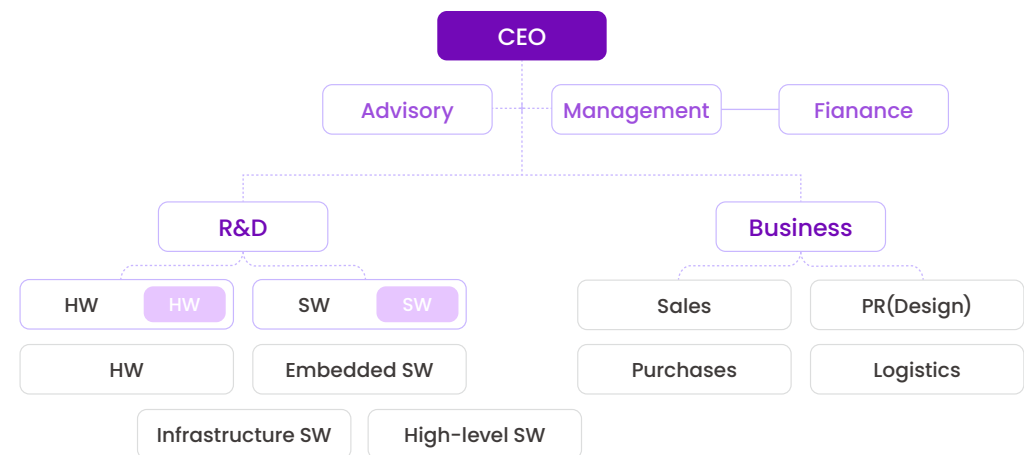
Organisation

17

2024 Year

R&D People Rate

70.5%



Introduction



Certificate of Technical Achievement



KR Patent for Server Rack System



KR Patent for Modular BMC



Green Product Award 23' Nominee



Achievement-sharing Enterprise Certificate



Direct Producing Confirmation



SW Business Enterprise Confirmation



Specialised in Materials, Components, and Equipments

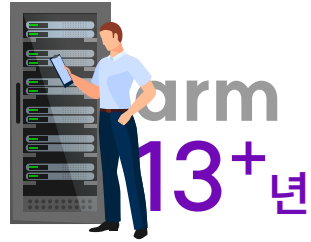


Certificate of Corporate-affiliated R&D Lab



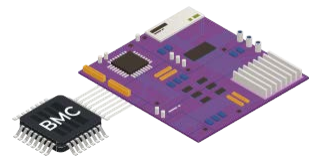
Venture Enterprise Confirmation

Introduction



Korea's **First and Only** ARM Server Developing Company for 12+ Years

The first server company to design and manufacture ARM server motherboards in KR since 2011
Stable production base through partnership with key partners in the value chain



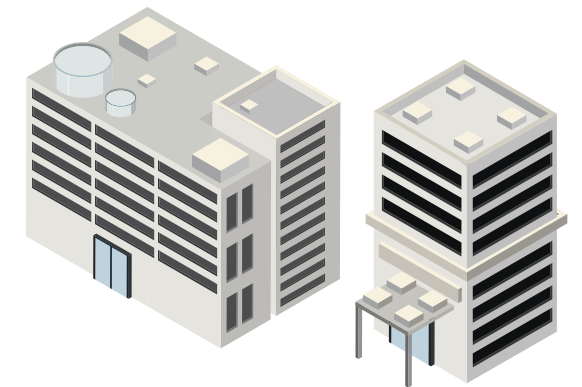
ARM Server Total Company developing Not Only HW But Also SW with UEFI and BMC

Developing and porting of all softwares to operate ARM server motherboards, from UEFI(BIOS) to OS, drivers. Self-developed BMC, essential for remote management, and porting of OCP OpenBMC

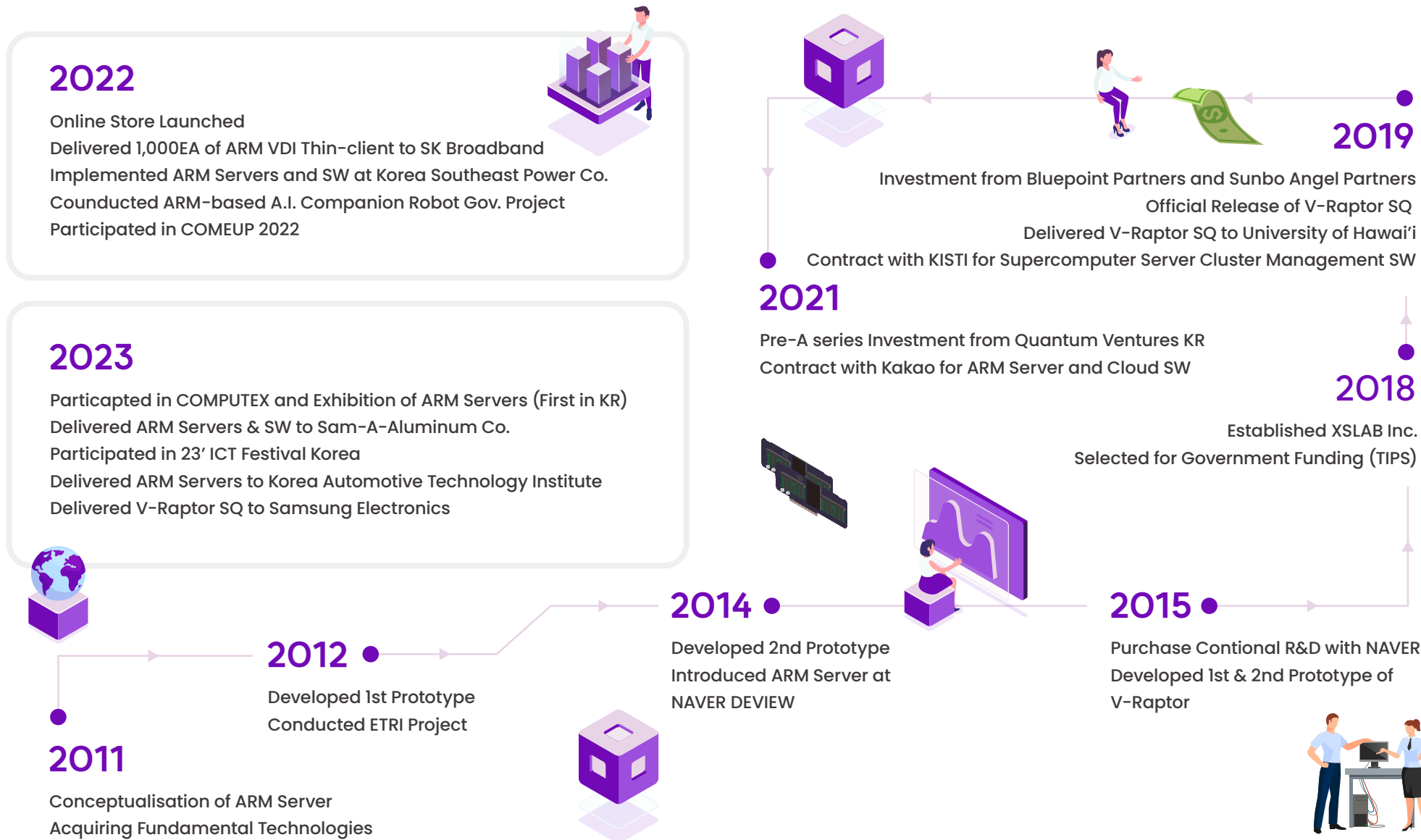


Build **ARM Server based on Cloud Services** and Management Solutions like OpenStack

In addition to delivering servers simply, XSLAB is also capable of building & managing cloud services like OpenStack and Kubernetes. Developing remote management software for KISTI's super computer cluster and software for management

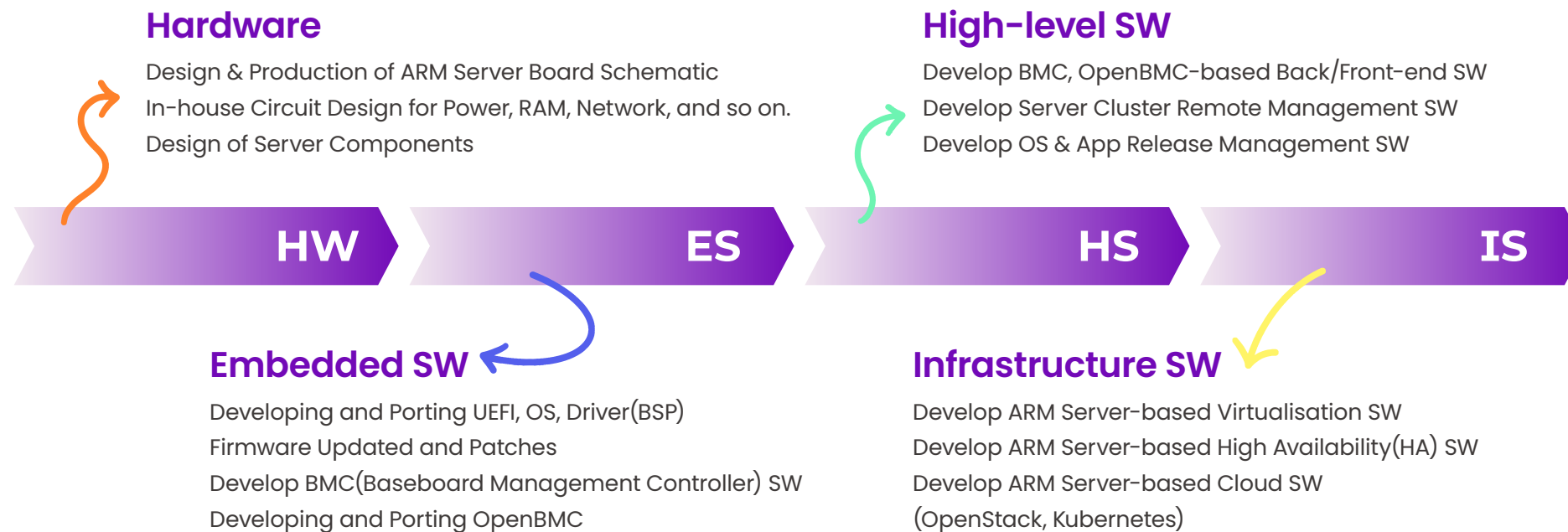


Introduction








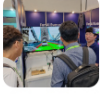










ARM Server Full-stack All-in-one Development System



Introduction



Press Releases

| | | |
|--|--|---|
| <p>데이터넷 · 2023.12.26.</p> <p>엑세스랩, 삼성전자에 자체 제작 ARM 서버 공급</p> <p>엑세스랩(대표 유명환)이 삼성전자 사업장 내에 자체 제작한 ARM 서버 납품을 완료했다고 밝혔다. 이번에 납품된 ARM 서버는 엑세스랩에서 자체 개발하고 국내에서 제조(생산)하고 있는 제품으로, 2019년 5월 미국 ...</p>  | <p>지디넷코리아 · 2023.09.24. · 네이버뉴스</p> <p>엑세스랩 "오픈소스로 국내 유일 ARM 서버 개발"</p> <p>엑세스랩은 12년 이상 저전력 매니코어 ARM 서버를 개발해온 임베디드 전문 기업이다. 이러한 노하우와 역량을 기반으로 ARM 서버의 하드웨어(HW)... 유명한 대표는 "엑세스랩의 ARM 서버 브리 랩터는 외국산 제품...</p>  | <p>디지털데일리 · 2023.07.25. · 네이버뉴스</p> <p>엑세스랩, 이노웁스코리아와 해외 총판 계약</p> <p>엑세스랩이 대만 이노디스크(Innodisk) 한국 총판 이노웁스코리아와 ARM 서버의 글로벌 진출을 위한 해외 총판 계약을 완료했다고 25일 발표했다. 엑세스랩은 ARM 칩 기반의 마더보드를 직접 설계하고 국내에서 제조하...</p>  |
| <p>서울경제 · 18면 TOP · 2023.05.31. · 네이버뉴스</p> <p>[컴퓨텍스2023]"AI 붐을 기회로" 대만서 활로 찾는 K테크</p> <p>같은 전시관 다른 한켠에서는 서버 개발 기업 엑세스랩이 낯선 보라색 컴퓨터로 시선을 끌며 관람객을 끌어들이고 있었다. 이 회사는 컴퓨터 시장에서 주류인 인텔-AMD 칩이 아닌 저전력에 강점이 있는 ARM 형식에 ...</p>  | <p>전자신문 · 24면 3단 · 2023.05.14. · 네이버뉴스</p> <p>에이블클라우드-엑세스랩, 'ARM 서버 기반 HCI 고도화' 맞손</p> <p>엑세스랩(대표 유명환)과 최근 'ARM 서버 기반 하이퍼컨버지드 인프라(HCI) 연구개발과 고객사 발굴'을 위한 업무협약을 맺었다고 14일 밝혔다. 양사는 업무협약을 통해 △양사 고유기술 기반 기술 개발 △고객사 발굴...</p>  | <p>데이터넷 · 2023.04.25.</p> <p>엑세스랩, 삼아알미늄에 ARM 기반 데이터 서버 납품-구축</p> <p>ARM 기반 저전력 서버, 엣지 컴퓨팅 디바이스 개발 전문기업 엑세스랩(대표 유명환)은 2차전지 양극박 전문 기업 삼아알미늄(대표 하상용)과 공장 내 ARM... 엑세스랩은 마더보드와 BMC 소프트웨어(SW) 등 원격 관리 S...</p>  |
| <p>테크월드 · 2023.02.22.</p> <p>엑세스랩, ARM 기반 오픈스택 클라우드 서비스 'BlueShift' 출시</p> <p>ARM 서버 전문 개발기업 엑세스랩(대표 유명환)이 ARM 기반 오픈스택 클라우드 서비스 '블루시프트(BlueShift)'를 출시했다고 22일 밝혔다. 블루시프트는... 한석현 엑세스랩 인프라스트럭처 소프트웨어 팀장 "향후 블...</p>  | <p>CIO Korea · 2022.12.22.</p> <p>티맥스소프트, 엑세스랩 ARM 서버에 미들웨어 탑재</p> <p>티맥스소프트는 ARM 기반 저전력 서버 및 엣지 컴퓨팅 디바이스 개발 업체인 '엑세스랩'과 ARM 서버 시장 생태계 조성을 위한 업무 협약을 체결했다고 밝혔다. 양사는 이번 협약을 통해 티맥스소프트의 미들웨어와 엑...</p>  | <p>전자신문 · 2022.11.29. · 네이버뉴스</p> <p>ICT기산업 페스티벌 개최...우수 서버-저전력 솔루션 총출동</p> <p>엑세스랩은 최고 효율을 자랑하는 데이터센터용 저전력 ARM 서버, V-랩터(Raptor) 시리즈를 선보였다. 768개 코어 기반 ARM 서버로, 경쟁 서버 대비 약 1/10의 작은 크기와 PC 1대 수준(600w)으로 전력소모량이 적다...</p>  |
| <p>에이빙뉴스 · 2022.11.04.</p> <p>저전력 ARM 서버 전문기업 '엑세스랩', COMEUP 2022서 개인...</p> <p>엑세스랩(XSLAB, 대표 유명환)은 오는 11월 9일(수)부터 11일(금)까지 3일간 서울 동대문디자인플라자(DDP)에서 진행되는 COMEUP 2022에 참가해 책상 위에 올려놓고 사용 가능한 초소형 개인용 ARM 서버와 ARM...</p>  | <p>데이터넷 · 2021.10.20.</p> <p>디지털 혁신 가속, 서버 시장 성장 이끈다 (3)</p> <p>엑세스랩은 자체 연구개발을 통해 ARM 서버 '브리 랩터(V-Raptor)' 제품군을 출시하고 무주공산 시장을 선점하겠다는 각오다. 엑세스랩은 대표 제품인 '브리 랩터 SQ'를 비롯해 19인치 1U 미니 서버 '브리 랩터 SQ 미니', ...</p>  | <p>아이티비즈 · 2021.07.22.</p> <p>엑세스랩-수세코리아, 엣지 컴퓨팅 시장 확대 이노베이트 파트...</p> <p>엑세스랩과 수세코리아는 엣지 컴퓨팅 시장 확대를 위한 이노베이트 파트너십을 체결했다. 엑세스랩(대표 유명환)과 수세코리아(대표 최근홍)가 엣지 컴퓨팅 시장 확대를 위한 이노베이트 파트너십을 체결했다고 22일 ...</p>  |
| <p>전자신문 · 22면 2단 · 2021.06.23. · 네이버뉴스</p> <p>[공공컴퓨팅마켓 2021]엑세스랩, 초저전력 ARM서버로 클라우...</p> <p>"엣비슷한 하드웨어 사양으로 경쟁력을 잃어가는 국산 서버 업계에 저전력 ARM 서버는 새로운 활로를 열어줄 것입니다." 엑세스랩(대표 유명환)은... 엑세스랩은 백열등 한 개 정도가 소모하는 전력(15W)만으로 24개 ...</p>  | <p>포브스코리아 · 2021.03.05.</p> <p>['초격차' 기술 주도할 10인] 한국 제조업 혁신의 주역들</p> <p>유명한 엑세스랩 대표 글로벌 5대 ARM 서버 제조사 엑세스랩은 ARM 서버 'V랩터'를 만드는 회사다. 영국 반도체 기업 ARM사는 서버-PC용 프로세서 시장에서도 전력 소모가 적고 가격이 저렴한 제품을 공급해 막...</p>  | <p>전자신문 PICK · 1면 2단 · 2020.05.24. · 네이버뉴스</p> <p>[미래기업포커스]엑세스랩, 5G 에지컴퓨팅 서버 시장 공략</p> <p>엑세스랩(대표 유명환)이 저전력 ARM 서버 'V랩터'로 국내외 5세대(5G) 이동통신 에지컴퓨팅 서버 시장을 공략한다. 엑세스랩은 국내에서 처음 ARM 서버 생태계 조성을 위한 자문위원회 'ARM 서버 AC'에 포함되는 등... 엑세스랩 주식회</p>  |

Introduction



Customer & Partners

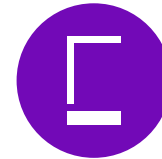


We are manufacturing and supplying ARM servers with leading domestic and overseas companies such as Samsung Electronics, Ampere Computing, Kakao, and SK Broadband.



Develop & Supply Customisable ARM Server

Development & Supply of V-Raptor ARM Server Series
ARM Servers for Special Purposes
Customised HW and SW OEM/ODM Development



ARM PC-based Display Devices

OEM/ODM for ARM PC-based Display Devices
Migration of Legacy intel-based industrial PCs to ARM-based
Platforms such as POS, KIOSK, DID, etc.
OEM/ODM for Low-power ARM Laptops(Android, Linux, etc.)



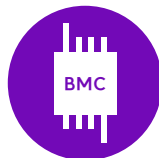
Develop ARM Server-based Cloud SW

In-house Establishment & Support of Cloud-infra based
on ARM Servers (OpenStack, Kubernetes, etc.)
Customisable Cloud Development & On-demand Build



XSLAB's ARM-based Cloud Service (BlueShift)

Cloud Service for Education & SMB
Based on OpenStack & K8s



Supply Remote Server Management SW

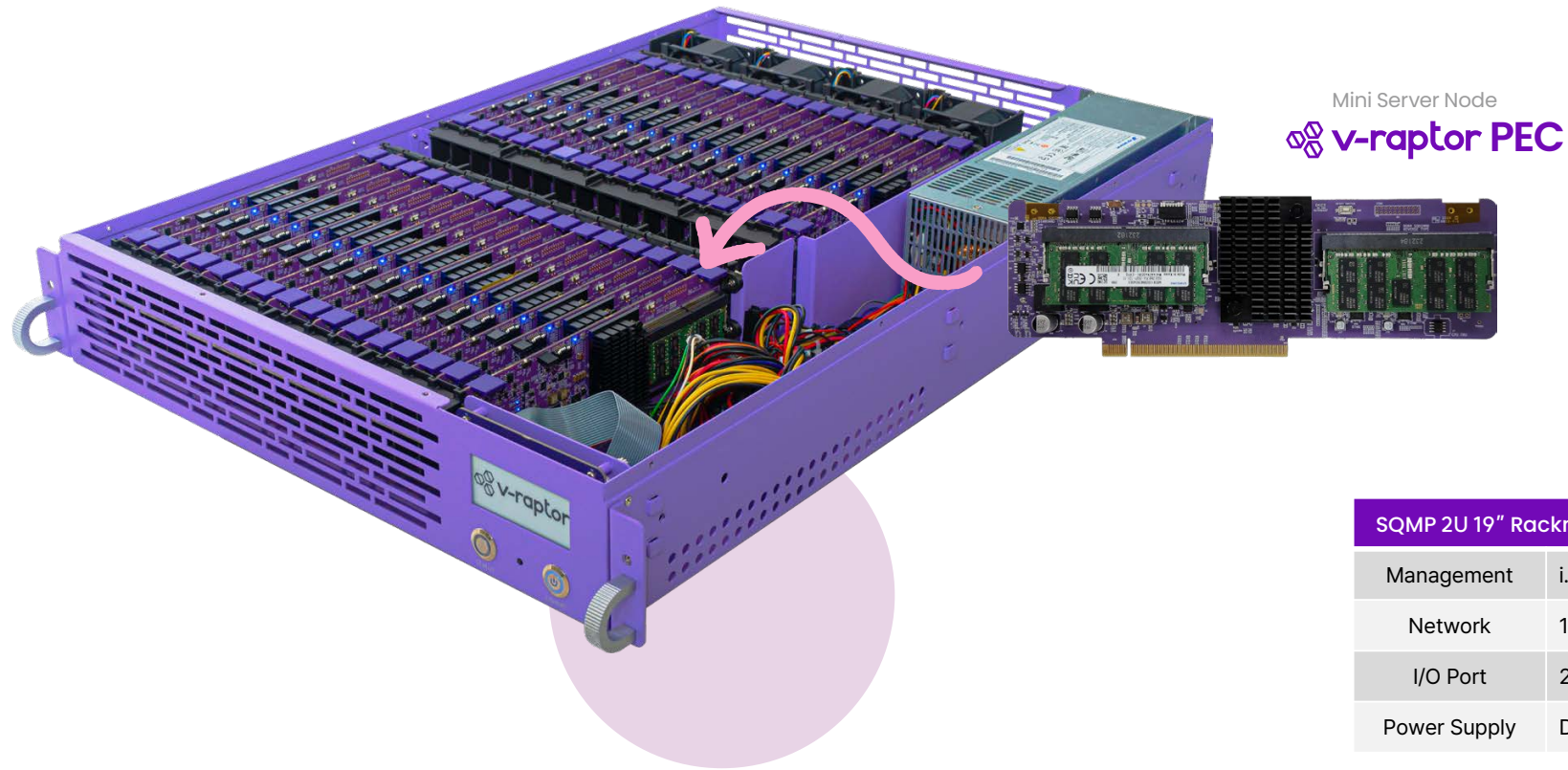
In-house Developed BMC & Firmware Update Solution
Development of ARM-based Industrial Devices &
Dedicated Remoter Management SW
Customisable Management SW Build



Develop Low-power A.I. Chip based Edge A.I.

ARM-based Low-power Edge AI Server Development
Computer-vision A.I. Chip-based Modular Solution Development
OEM/ODM Partnership with A.I. Chip Companies

Business



v-raptor SQ

V-Raptor SQ can operate 768 cores with up to 32 PEC server nodes.

SQMP 2U 19" Rackmount Chassis (440*650*85, mm)

| | |
|--------------|--|
| Management | i.MX6Q BMC ARM Cortex-A9 4-core, OpenBMC, XMAS Web Console |
| Network | 1 x 1GbE LAN for Remote Management |
| I/O Port | 2 x USB 2.0 (BMC), 1 x Debug micro USB, 2 x RJ45 |
| Power Supply | Dual 800W Redundant PSUs 80 PLUS PLATINUM |

V-Raptor PEC Server Node

| | |
|-------------|---|
| CPU | SynQuacer SC2A11, ARM Cortex-A53 1GHz 64bit 24-cores System on Chip |
| Network | 1 x 1GbE LAN System on Chip |
| Power | 15W Power Consumption |
| Memory Slot | 2 x DDR4 ECC SODIMM Slot 2133MHz, up to 32GB |
| Disk Slot | 1 x M.2 NVMe, up to 1TB |

Business



ARC1886 RAID Card



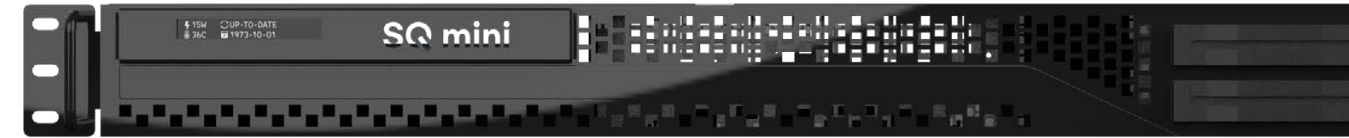
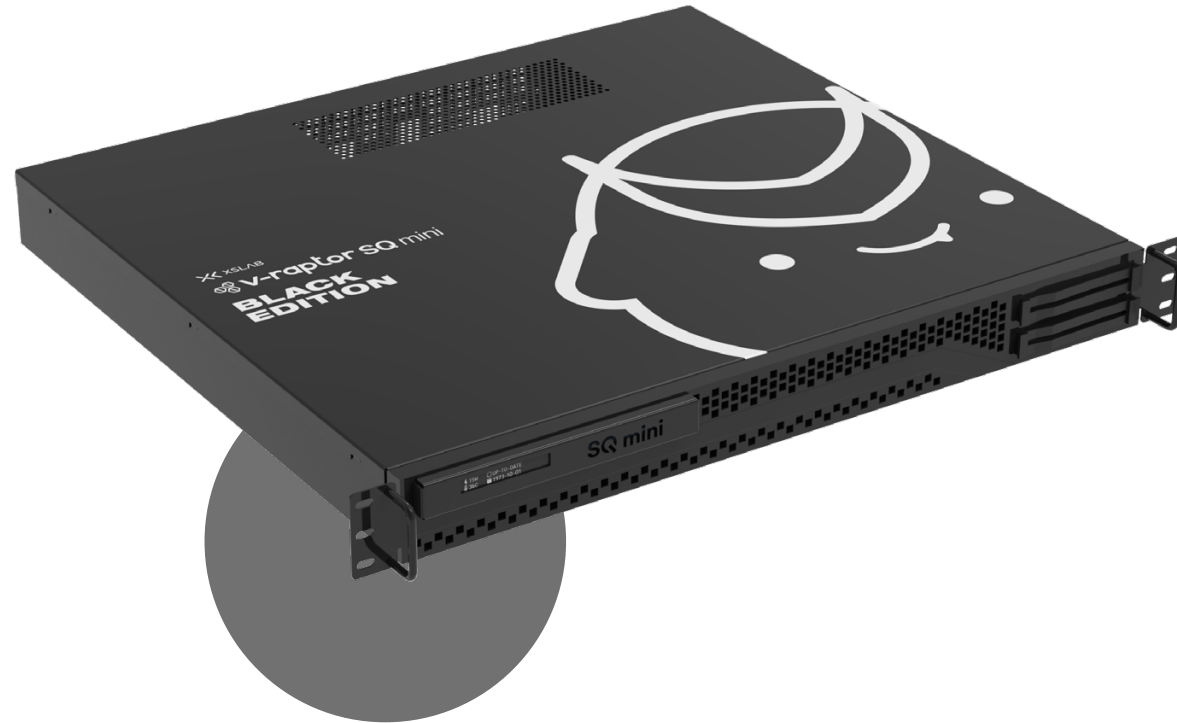
V-Raptor LX 2U 19" Rackmount Chassis (444*670*87, mm)

| | |
|----------------|--|
| CPU | Layerscape LX2160A, ARM Cortex-A72 2.2GHz 64bit 16-core System on Chip |
| Memory Slot | 2 x DDR4 RDIMM slots (1DPC) 2-Channel 3200MHz, up to 128GB |
| Disk Bay | Front side: 12 x 2.5"/3.5" SATA 3.0/SAS (HOT SWAP), Internal: 2 x 2.5" SATA3.0 |
| Network | HOST: 1 x 1GbE LAN, BMC: 1 x 1GbE LAN(Management) |
| Raid Card | ARC-1886-4X12I 12Gb/s SAS/SATA 0,1,10,30,50,60 |
| Expansion Slot | 2 x PCIe Gen3 x8(Slot x16), 1 x PCIe Gen3 x4(Slot x16) |
| I/O Port | 2 x USB 2.0(BMC), 1 x USB 3.0(HOST, Rear side) 1 x USB 3.0(HOST, Front side), 1 x Debug micro |
| Power Supply | Dual 1200W Redundant PSUs 80 PLUS PLATINUM |
| Management | i.MX6Q BMC ARM Cortex-A9 4-core, OpenBMC, XMAS Web Console |

v-raptor LX

V-Raptor LX has 12 SATA/SAS drive bays
It can handle over 200TB of data.

Business



v-raptor SQ mini

V-Raptor SQ mini is a 1U standalone edge server.

V-Raptor SQ mini 1U 19" Rackmount Chassis (430*383*44, mm)

| | |
|----------------|---|
| CPU | SynQuacer SC2A11, ARM Cortex-A53 1GHz 64bit 24-cores System on Chip |
| Memory Slot | 4 x DDR4 RDIMM slots (2DPC) 2-Channel 2133MHz, up to 64GB |
| Disk Bay | Front side: 2 x 2.5" SATA 3.0 |
| Network | HOST: 1 x 1GbE LAN, BMC: 1 x 1GbE LAN(Management) |
| Expansion Slot | 1 x PCIe Gen2 x4(Slot x16) |
| I/O Port | 2 x USB 2.0(BMC), 1 x Debug micro USB, 2 x RJ45 |
| Power Supply | Single 265W Flex ATX 80 PLUS BRONZE |
| Management | i.MX6Q BMC ARM Cortex-A9 4-core, OpenBMC, XMAS Web Console |

Business



v-raptor SQ nano

V-Raptor SQ nano is a personal ARM server workstation that fits in the palm of your hand.



V-Raptor SQ nano (193*169*33, mm)

| | |
|----------------|---|
| CPU | SynQuacer SC2A11, ARM Cortex-A53 1GHz 64bit 24-cores System on Chip |
| Memory Slot | 2 x DDR4 ECC SODIMM slots (1DPC) 2-Channel 2133MHz, up to 32GB |
| Disk Bay | Internal: 1 x M.2 NVMe, up to 1TB |
| Network | 1 x 1GbE LAN |
| Expansion Slot | 1 x PCIe Gen2 x4(Slot x16) |
| I/O Port | 4 x USB 3.0, 1 x Debug mini USB, 1 x RJ45 |
| Power Supply | DC 12V, 2A Power Adapter |



Low-power A.I. Chip-based Products

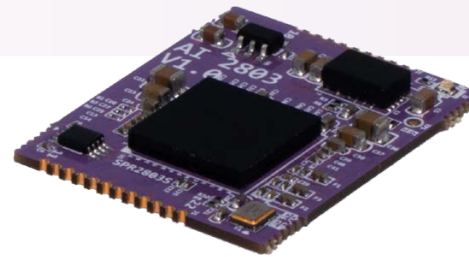
VDI Thin Client



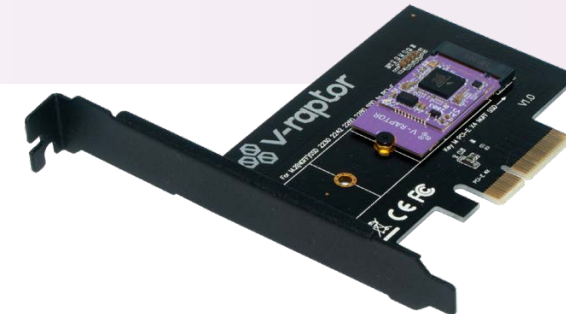
A.I. USB Dongle



A.I. Dev. Kit



Mass Procution Module

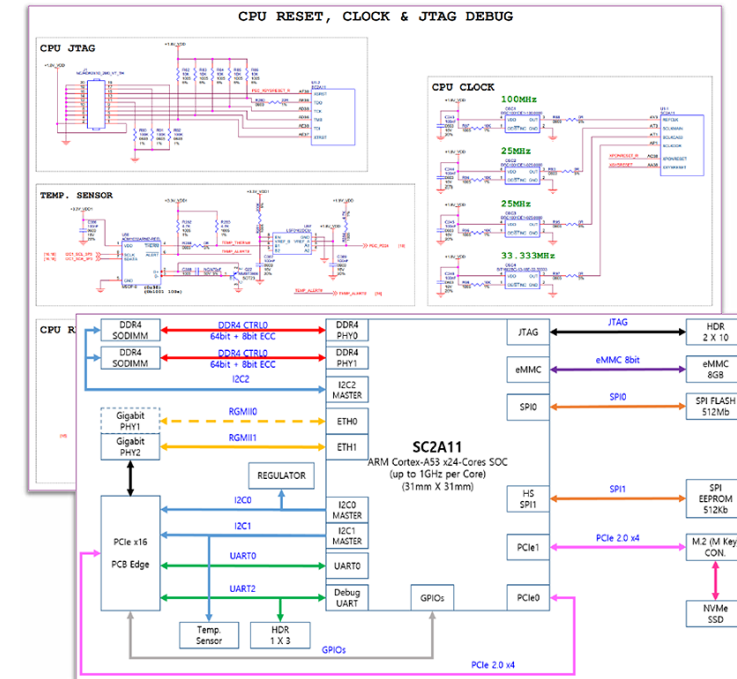
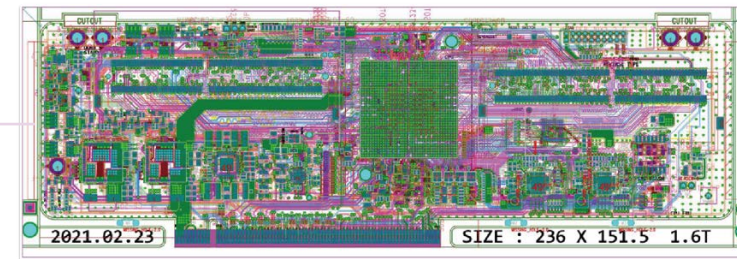
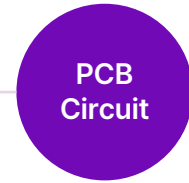


Mass Procution PCIe Card

The GTI SPR2803S NPU, which is installed in XSLAB's edge artificial intelligence, boasts a performance of 16.8 TOPS with 0.7W power consumption.



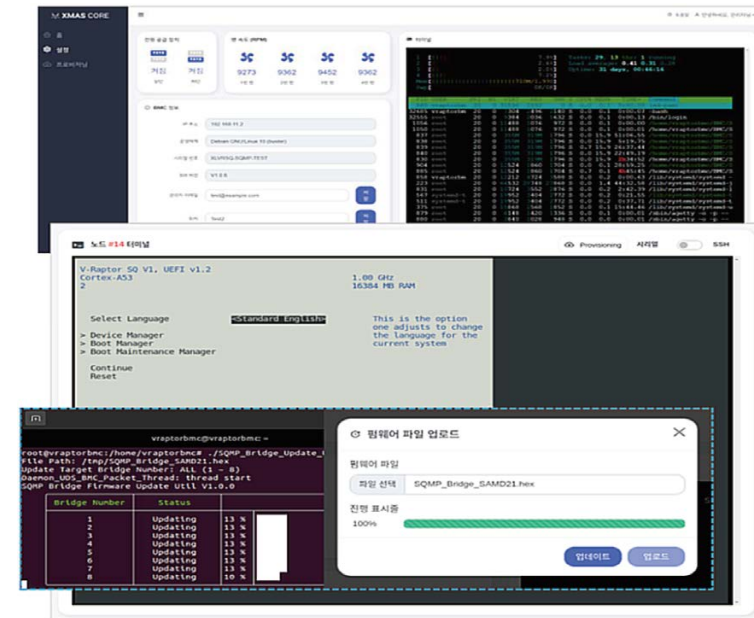
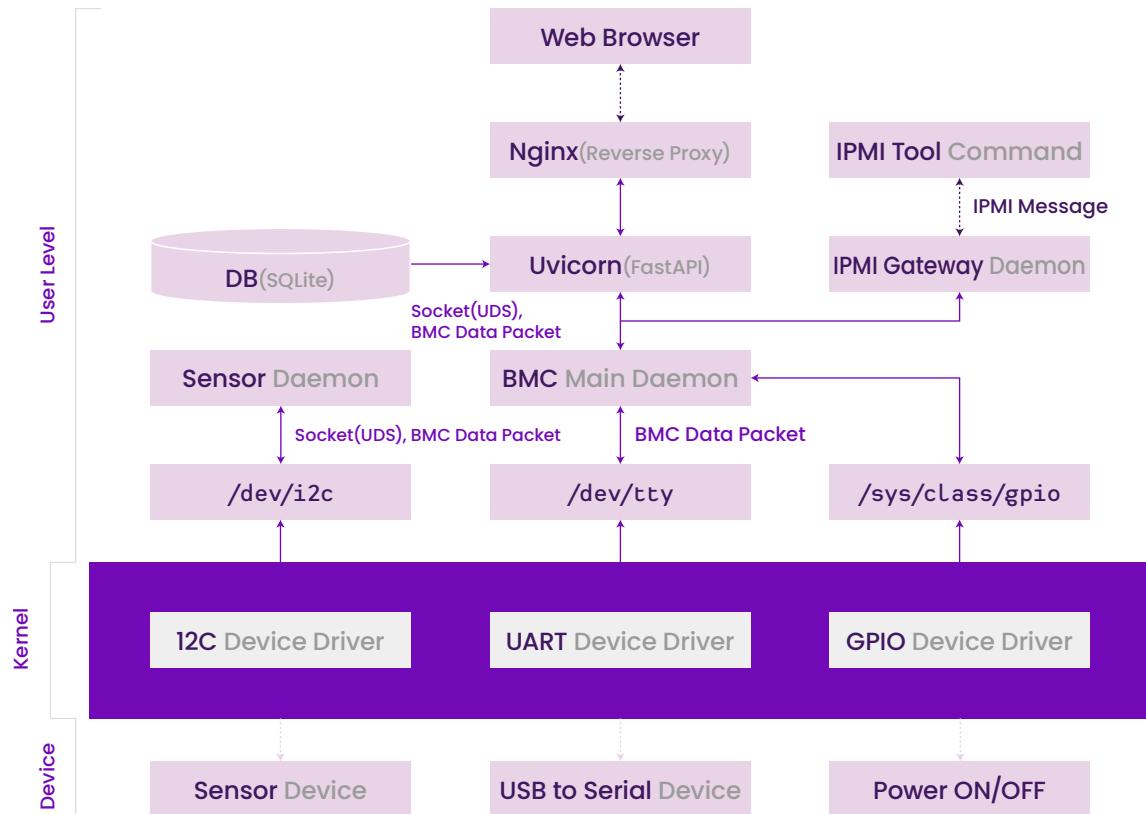
Design and Manufacture of In-house ARM Server Schematics



From design to production, the product is carried out in Korea, providing quick response, technical support, and customisation desired by the customer.



Proprietary BMC and OpenBMC Integration

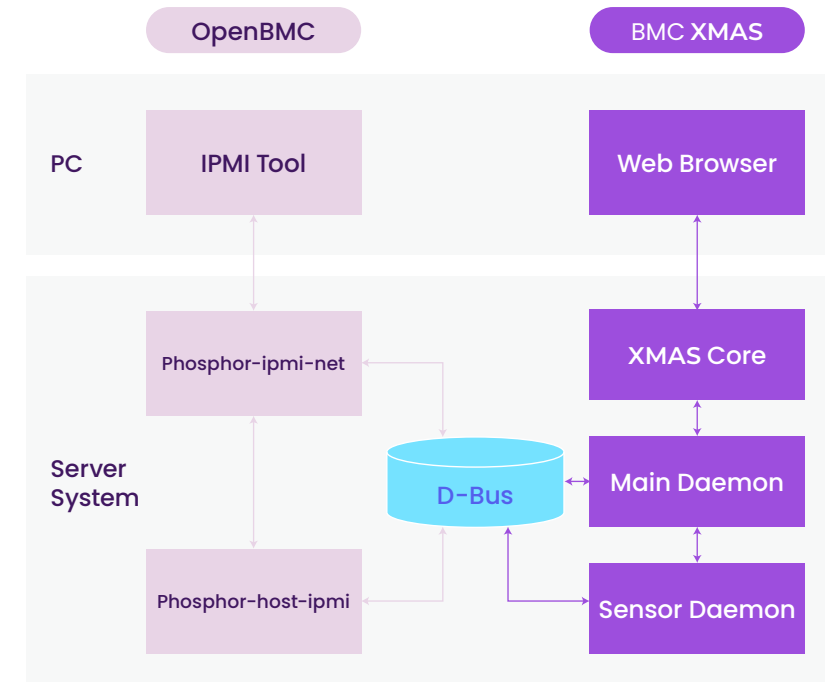
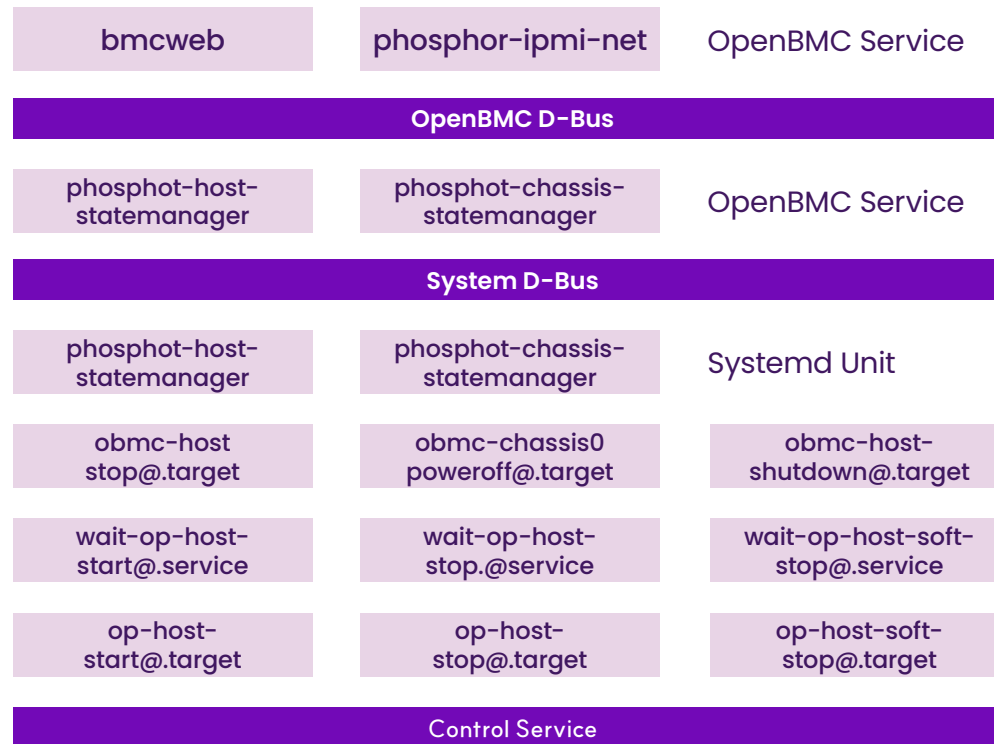


Customisable remote management solution to deploy OS and updates
 Factory reset and recovery to desired points in time supported on web and mobile





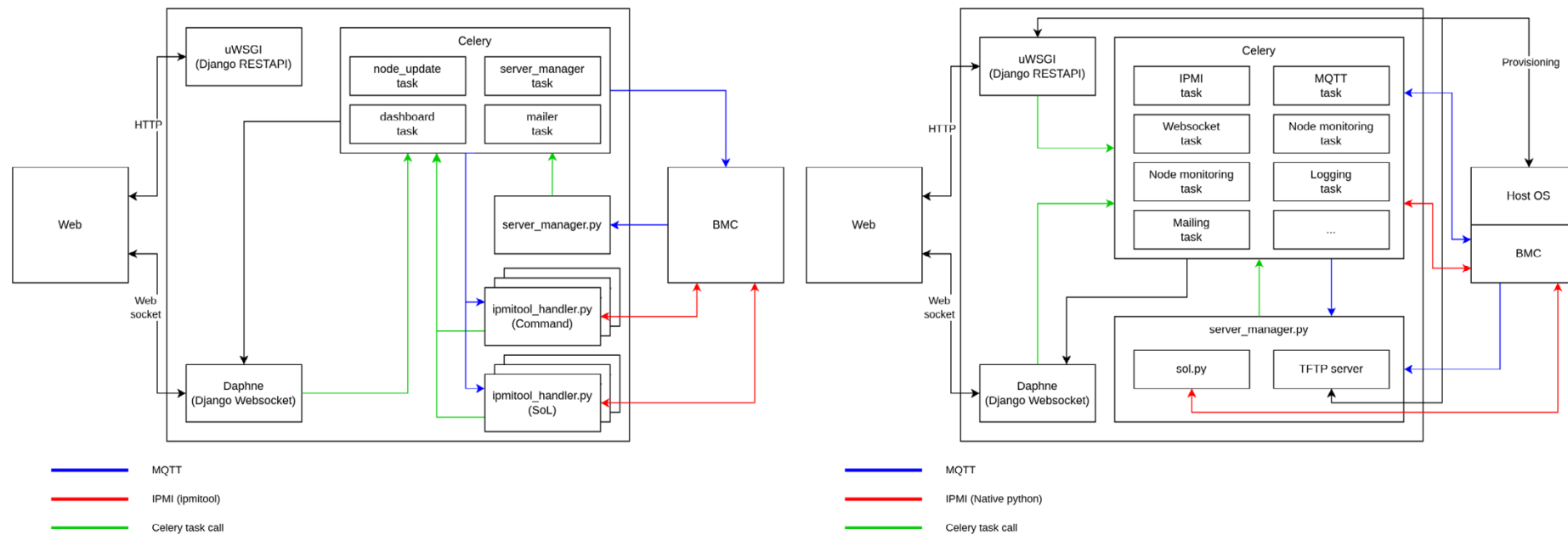
Proprietary BMC and OpenBMC Integration



XSLAB is the first in Korea to produce OCP standard servers by applying OpenBMC, which was started by Meta, to actual products.



Heterogeneous Server Cluster Remote Management SW



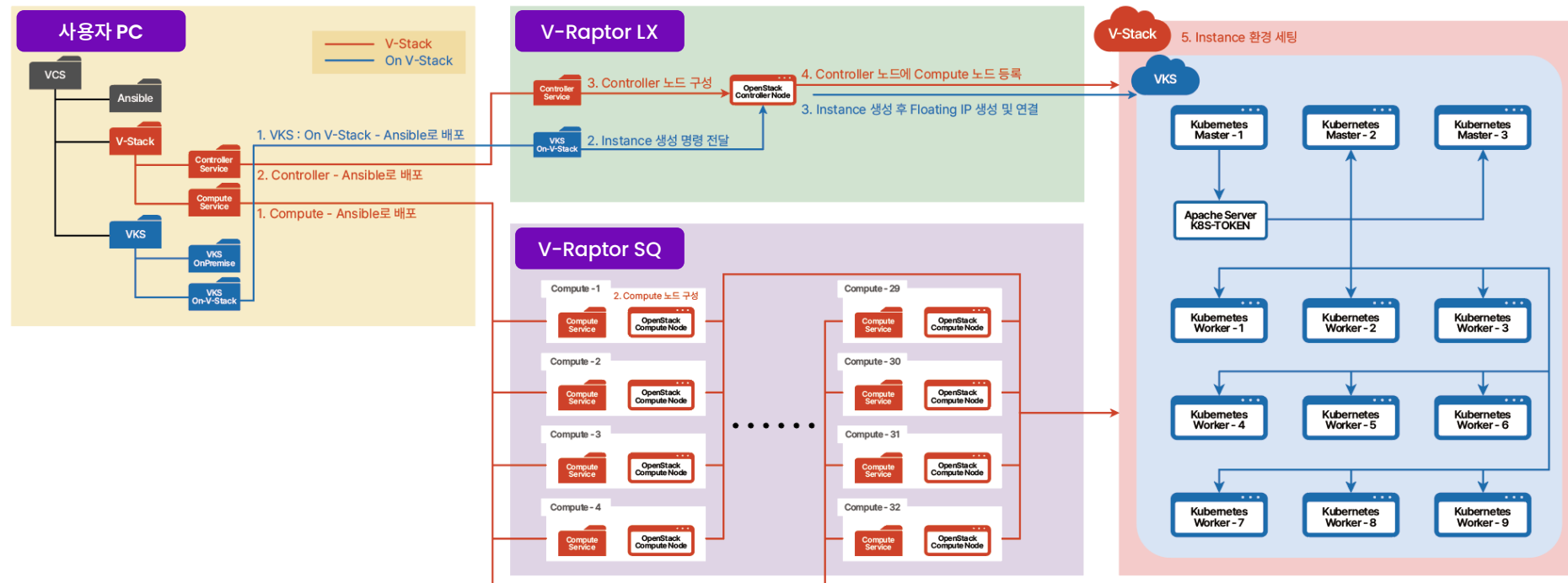
HW Status Monitoring & Management SW

Cluster Configuration & OS Provisioning SW

XSLAB, together with KISTI, develops a Korean-style supercomputer cluster management solution locally, monitors the HW status of numerous heterogeneous servers that make up the supercomputer in real time.



ARM Server-based Virtualisation & Cloud SW



We are developing ARM server-based virtualisation technology using hypervisor-based VMs & Linux containers (LXC, Docker), building OpenStack-based cloud service BlueShift with ARM servers, & building on-premise cloud services.

References



ARM Servers on University of Hawai'i




College of Education
UNIVERSITY OF HAWAII AT MANOA

V-Raptor Case Study

Seowon Jung / Systems Administrator
seowon@hawaii.edu

College of Education
University of Hawai'i at Manoa

2/4/2021

About College of Education

College of Education at the University of Hawai'i at Manoa situates in the beautiful Manoa Valley on the island of O'ahu. COE has over 400 faculty and staff, and features 8 academic departments, 2 research units, and 4 support unites.

Technology & Distance Programs: The COE Technology and Distance programs (TDP) office supports COE operations through technical supports, instructional design, software development, and faculty support for design and delivery of technology-mediated instruction.


College of Education
UNIVERSITY OF HAWAII AT MANOA



The Solution

V-Raptor: COE decided to purchase the V-Raptor SQ with 5 nodes for infrastructure services only. Infrastructure services are mission critical which is essential to the operation of the college to provide professional IT services and environment.

Software: Most of modern Linux distros support ARM-based binary packages. We verified that a lot of Linux distros support ARM platforms. Since XSLAB inc. officially supports Ubuntu, operating OpenLDAP, bind, and ISC-DHCP on V-Raptor are not an issue for me.

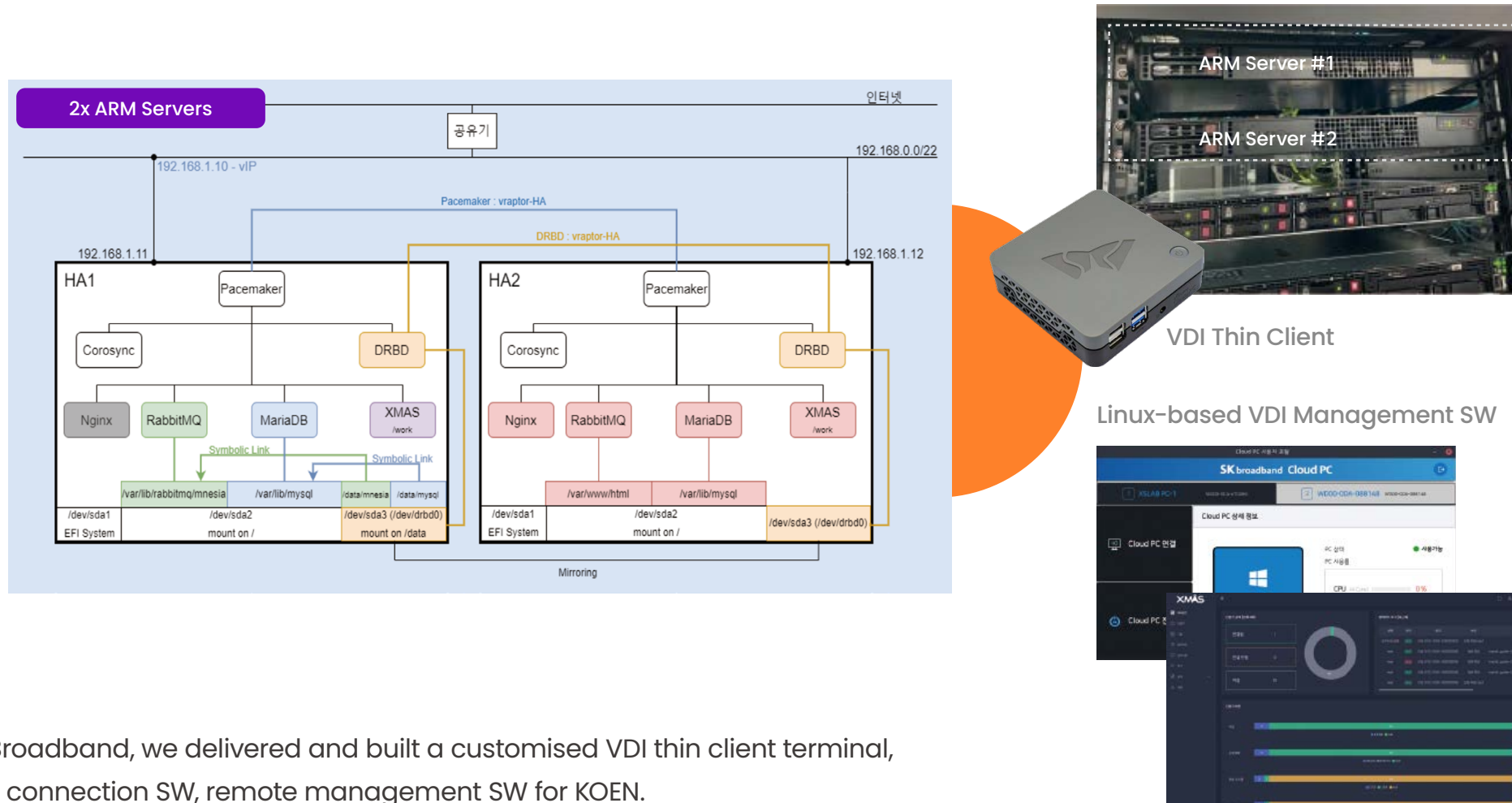
SIZING: We decided to move our own OpenStack Cloud to the Central IT Team at the data center which can be managed by the data center technicians. V-Raptor also can run and operate OpenStack properly, but we focused on running infrastructure services same as Intel-based servers due to the budget issue.

The V-Raptor SQ was delivered to the University of Hawaii in the United States in 2019, and its technological prowess and stability have been proven, with additional delivery & maintenance underway in 2022.

References



VDI Thin Client on Korea Southeast Power Co. (KOEN) via SK Broadband

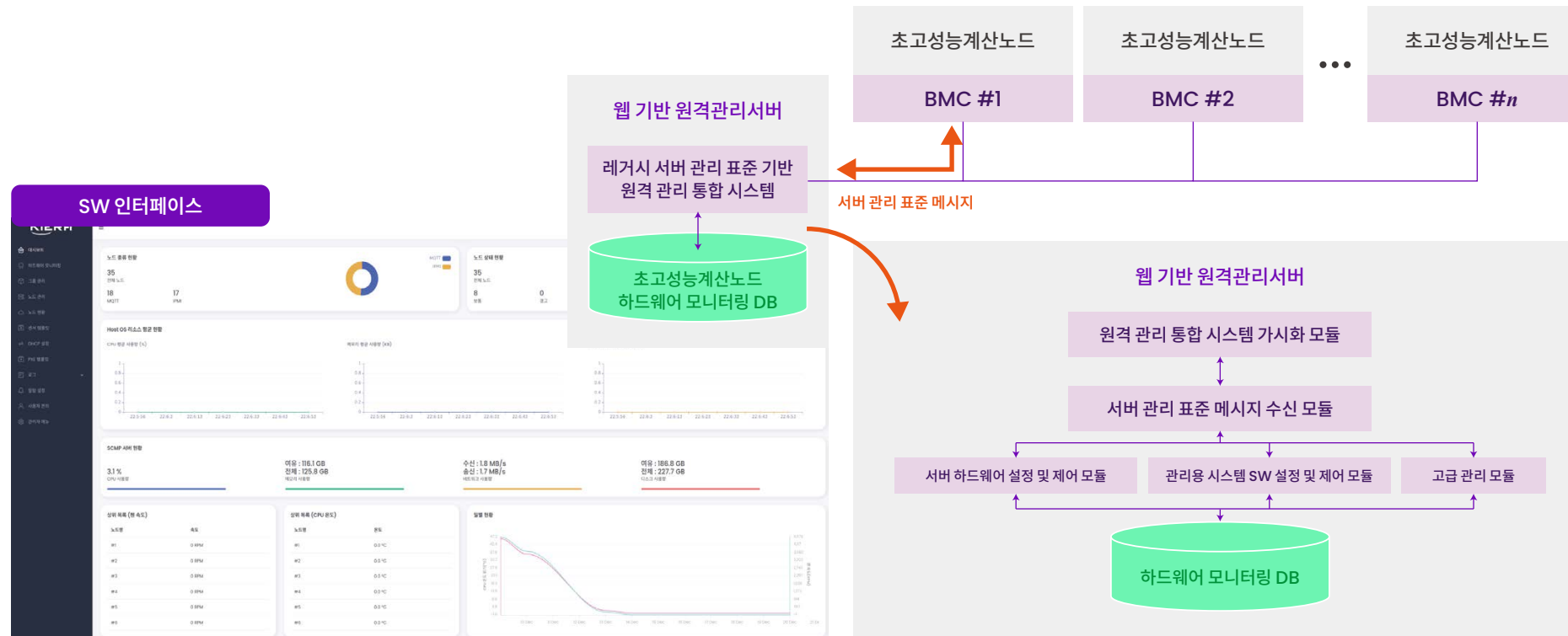


Together with SK Broadband, we delivered and built a customised VDI thin client terminal, ARM server for VDI connection SW, remote management SW for KOEN.

References



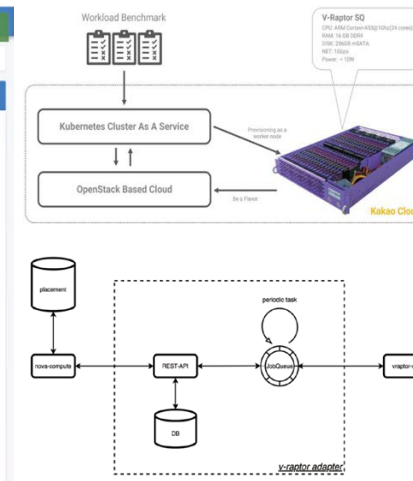
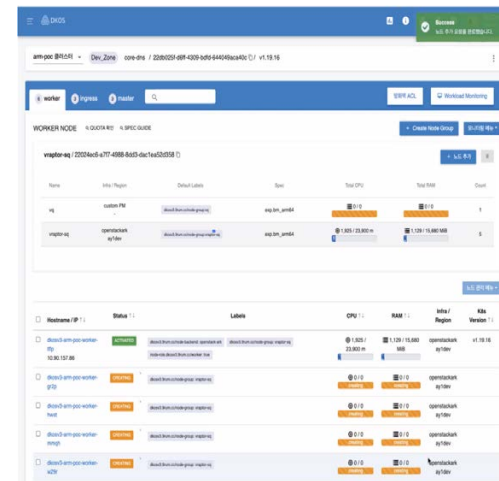
KISTI Supercomputer Cluster Remote Management Solution



In 2019, a contract was signed with KISTI to localise a supercomputer server cluster monitoring and integrated management solution. KiERA remotely monitors and manages the HW functions of ultra-high-performance server nodes, and monitors the temperature, power, and fan of each computational node based on BMC server management standard messages. This is a SW programme created based on a web browser to collect, analyse, manage, and efficiently process HW status information such as speed.



ARM Server on Kakao Mobile & Registration for Kakao Cloud Infrastructure System

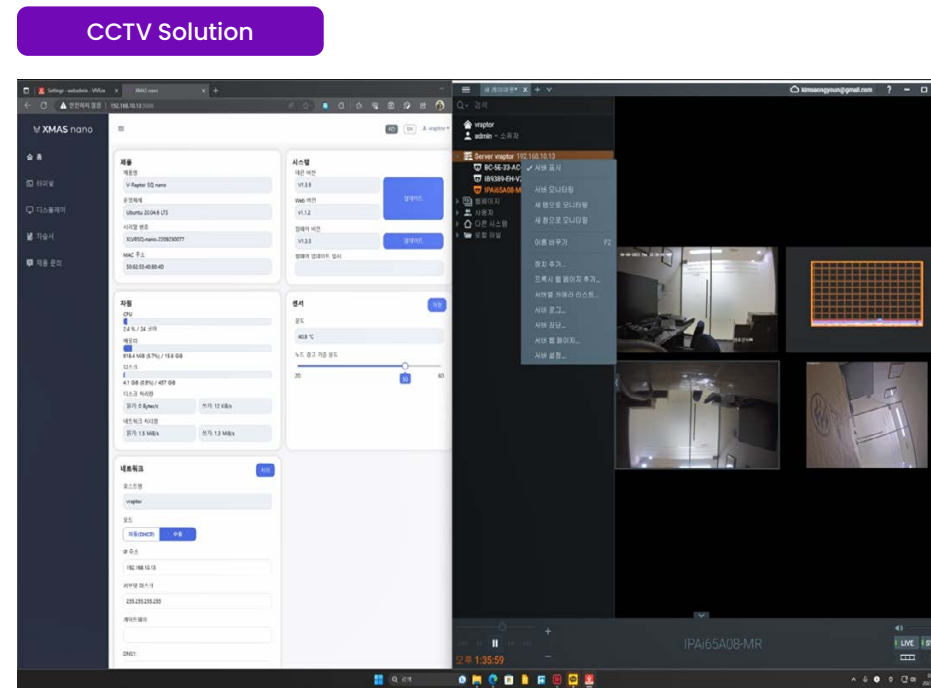


We delivered V-Raptor SQ in yellow, the Kakao brand colour, for Kakao Mobile Cloud, and registered ARM server products in Kakao Cloud Infrastructure System.

References



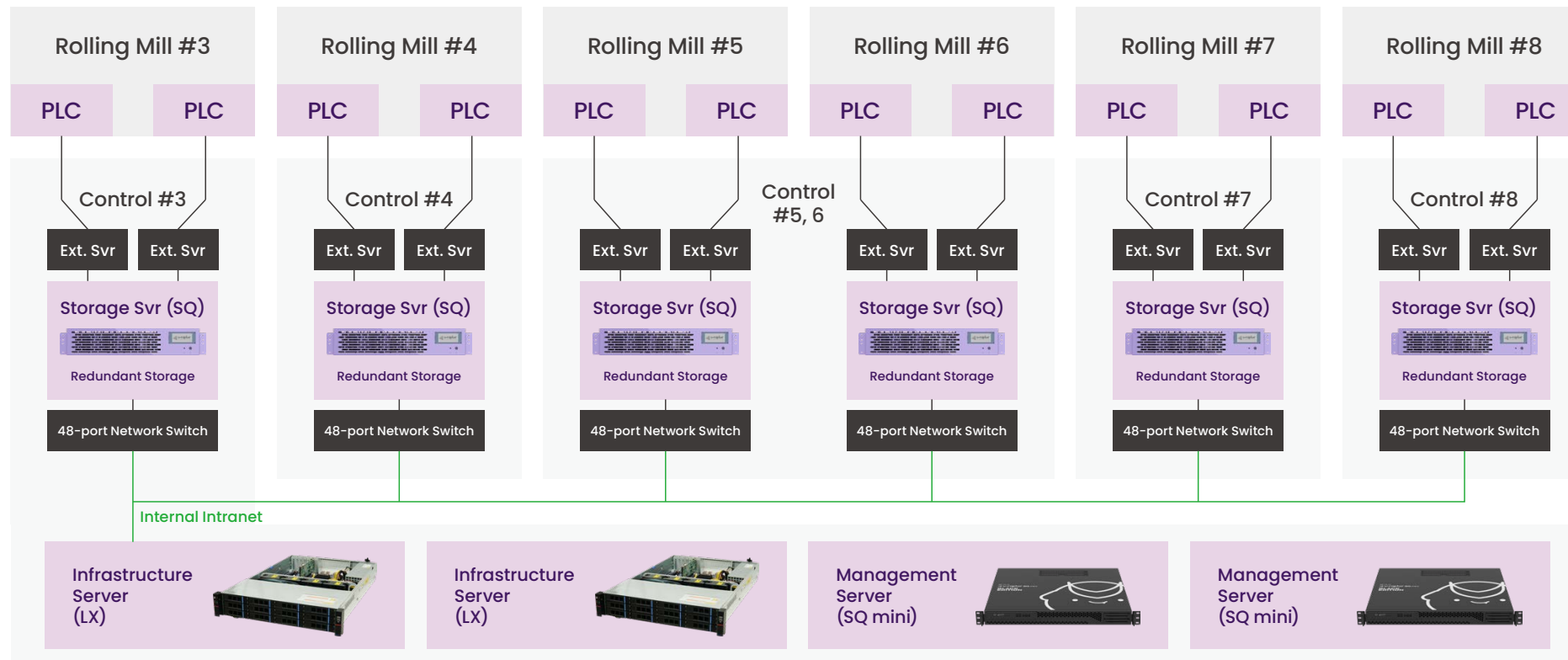
Edge ARM Server with VDI Management Solution of Network Optix Inc.



When running VIVEex, a localised version of Network Optics' NX solution, a global CCTV management solution company, on the V-Raptor SQ nano or PEC server, up to 100 CCTVs can be connected quickly and seamlessly.



ARM Server-based Smart Factory Solution on SAM-A-Aluminum Co.

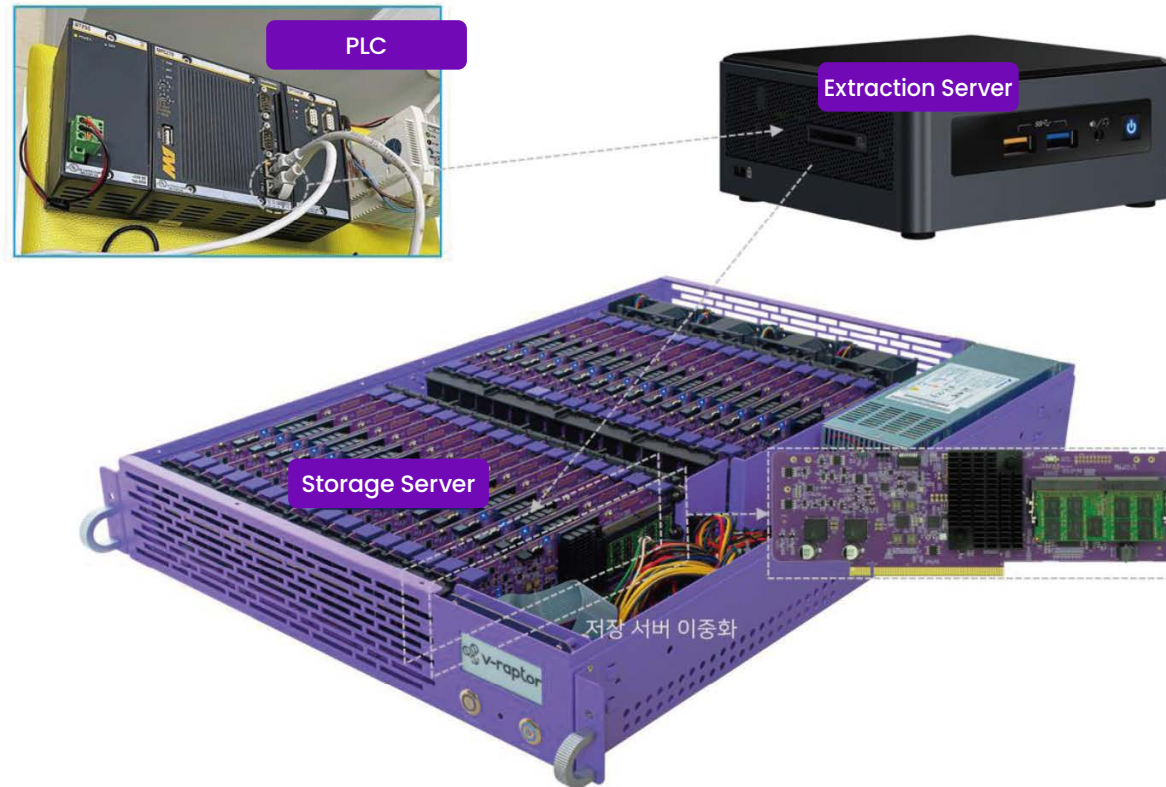


We built a private cloud that can extract and store data within the factory in real time and then share it externally, without the need for additional cooling and power facilities.

References



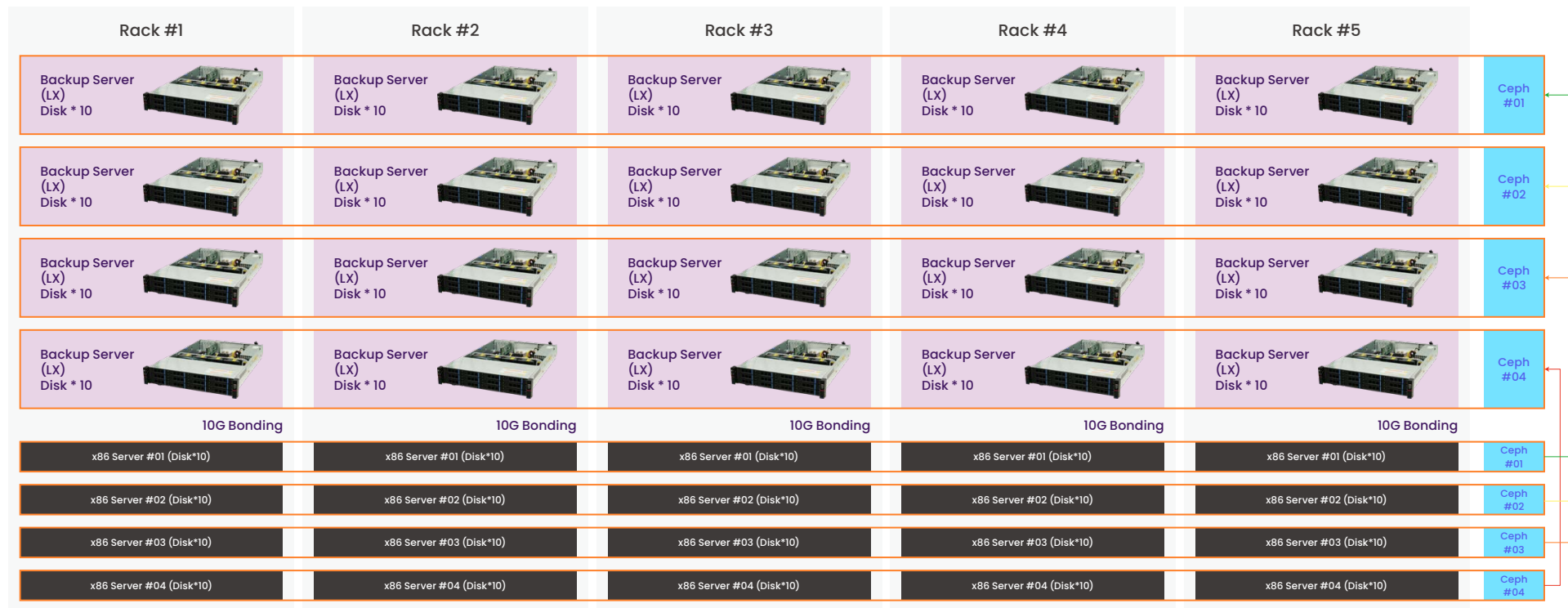
ARM Server-based Smart Factory Solution on SAM-A-Aluminum Co.



We built a private cloud that can extract and store data within the factory in real time and then share it e without the need for additional cooling and power facilities.



ARM Server on Korea Automotive Research Institute

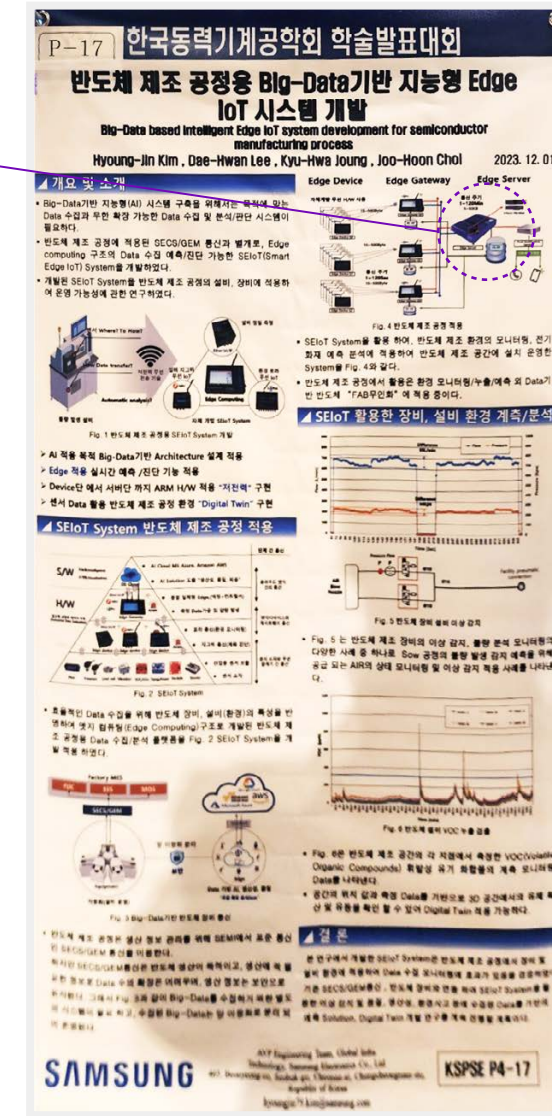
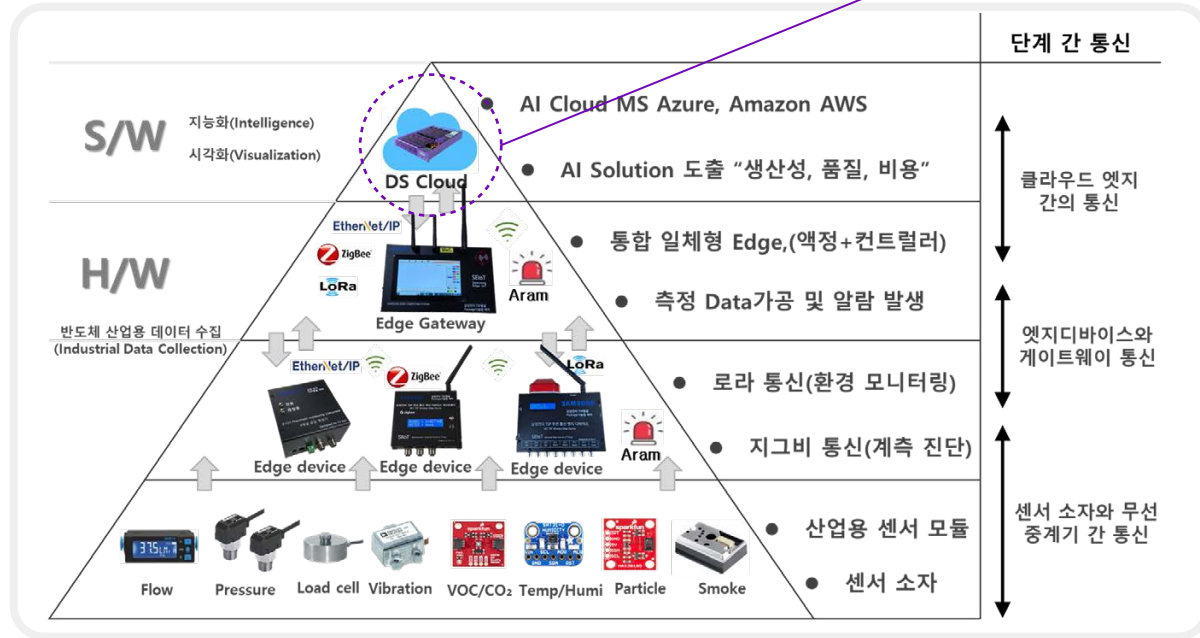


We built a V-Raptor LX server for data backup of the x86 server installed at the Korea Automobile Research Institute. As in the existing environment, 50 disks were bundled and set up as Ceph.

References



ARM Server on Samsung Electronics' Semiconductor Facilities



We delivered the V-Raptor SQ for monitoring the manufacturing process and fire prediction analysis in Samsung Electronics.



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