



耐障害性の自律検証機能を有する 広域分散プラットフォームの パブリッククラウド展開

**Deployment of a wide-area distributed platform
to the public cloud computing environment
with autonomous validation of fault-tolerance.**



A photograph showing a man standing in a vast field of rubble and debris. He is wearing a blue jacket and has his right hand raised to his face, partially obscuring his eye. The background is filled with twisted metal, wood, and other remnants of destroyed structures. The foreground shows more debris, including a yellow board and a red object.

2011.3.11

**The aftermath of the 2011
Tohoku earthquake and tsunami**

Distcloud

wide area geographically distributed virtualization platform

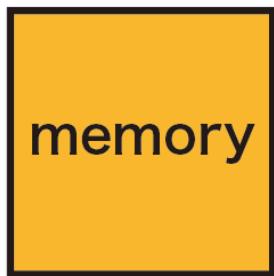
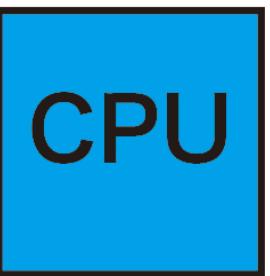




CPU

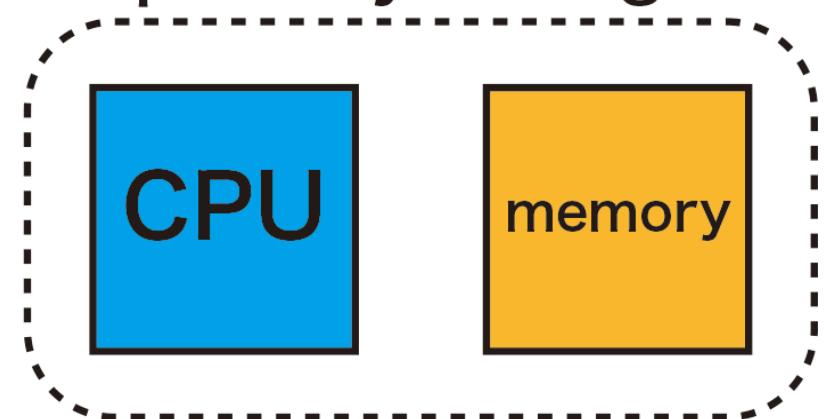
memory

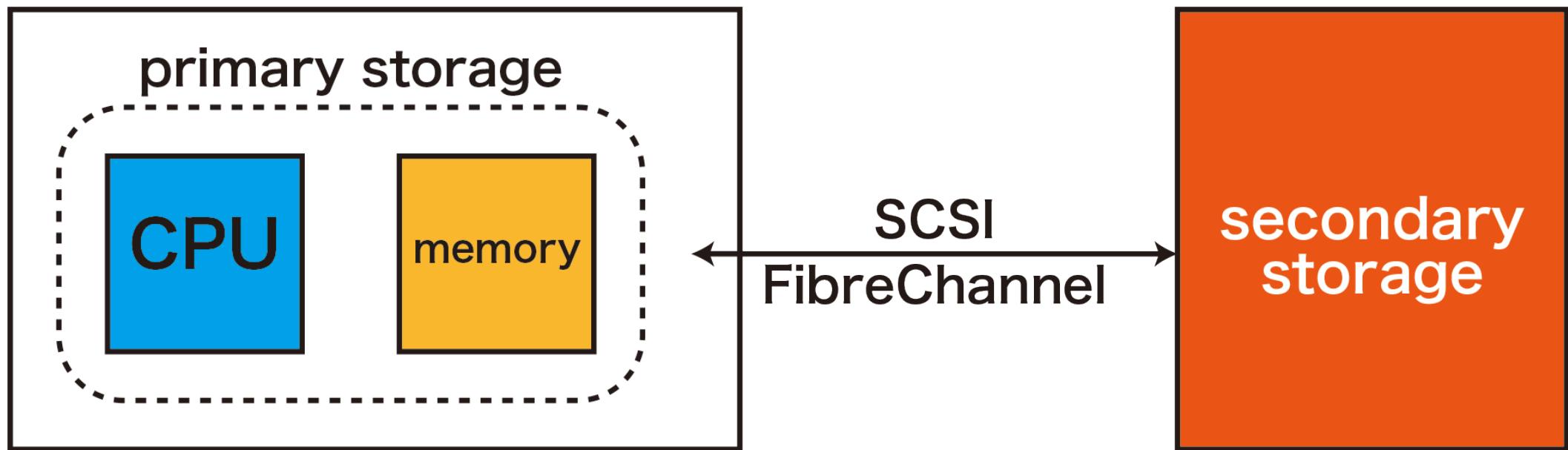
primary storage



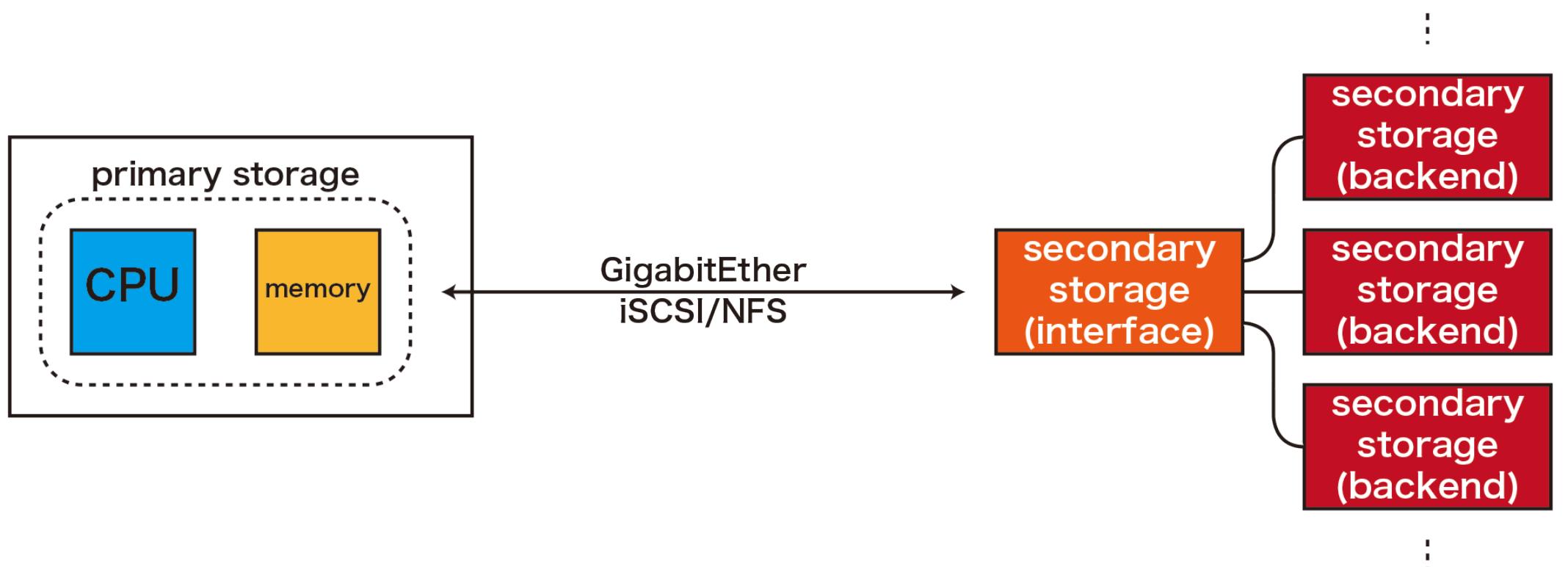
**secondary
storage**

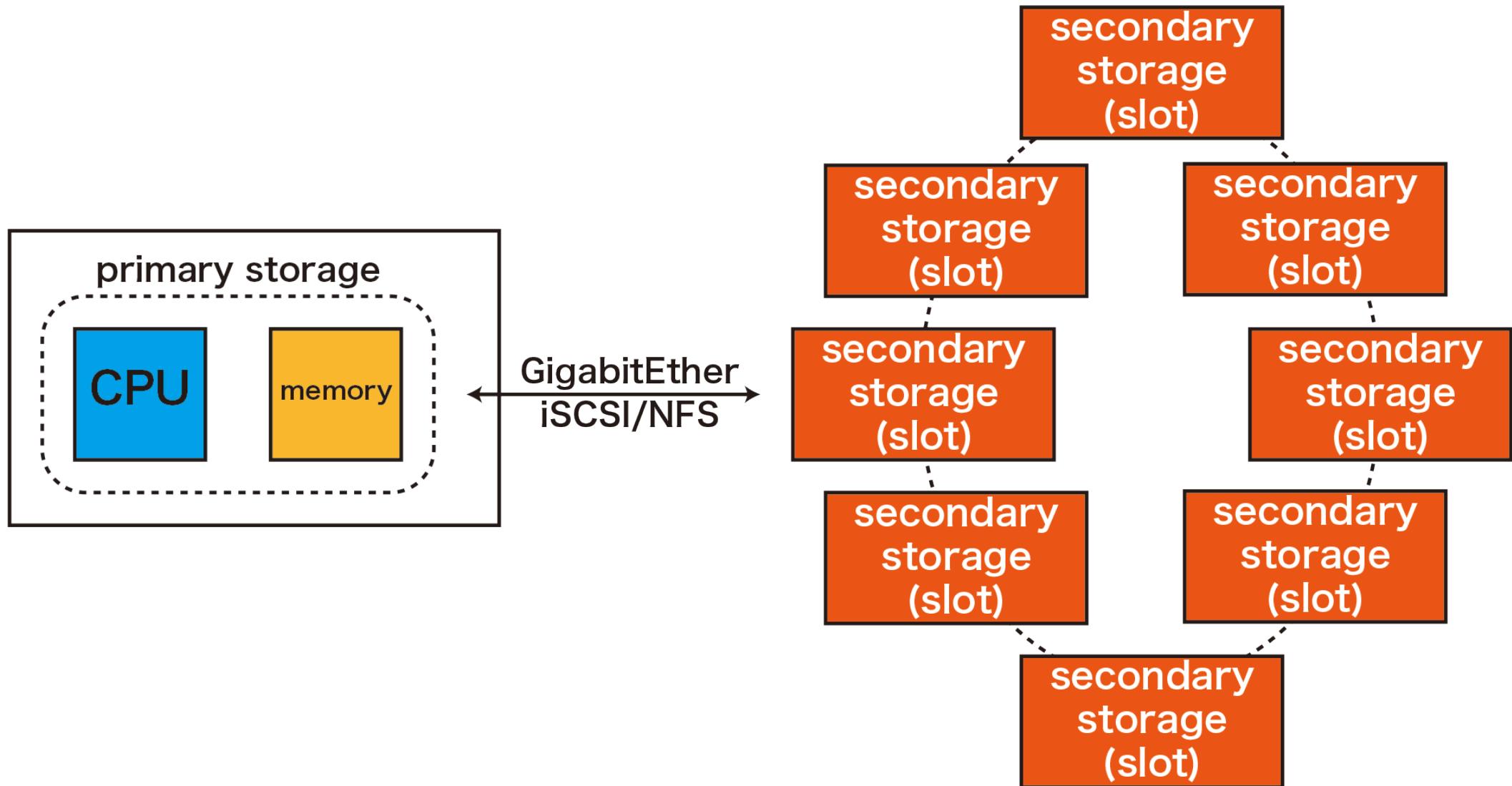
**fopen
fread/fwrite**







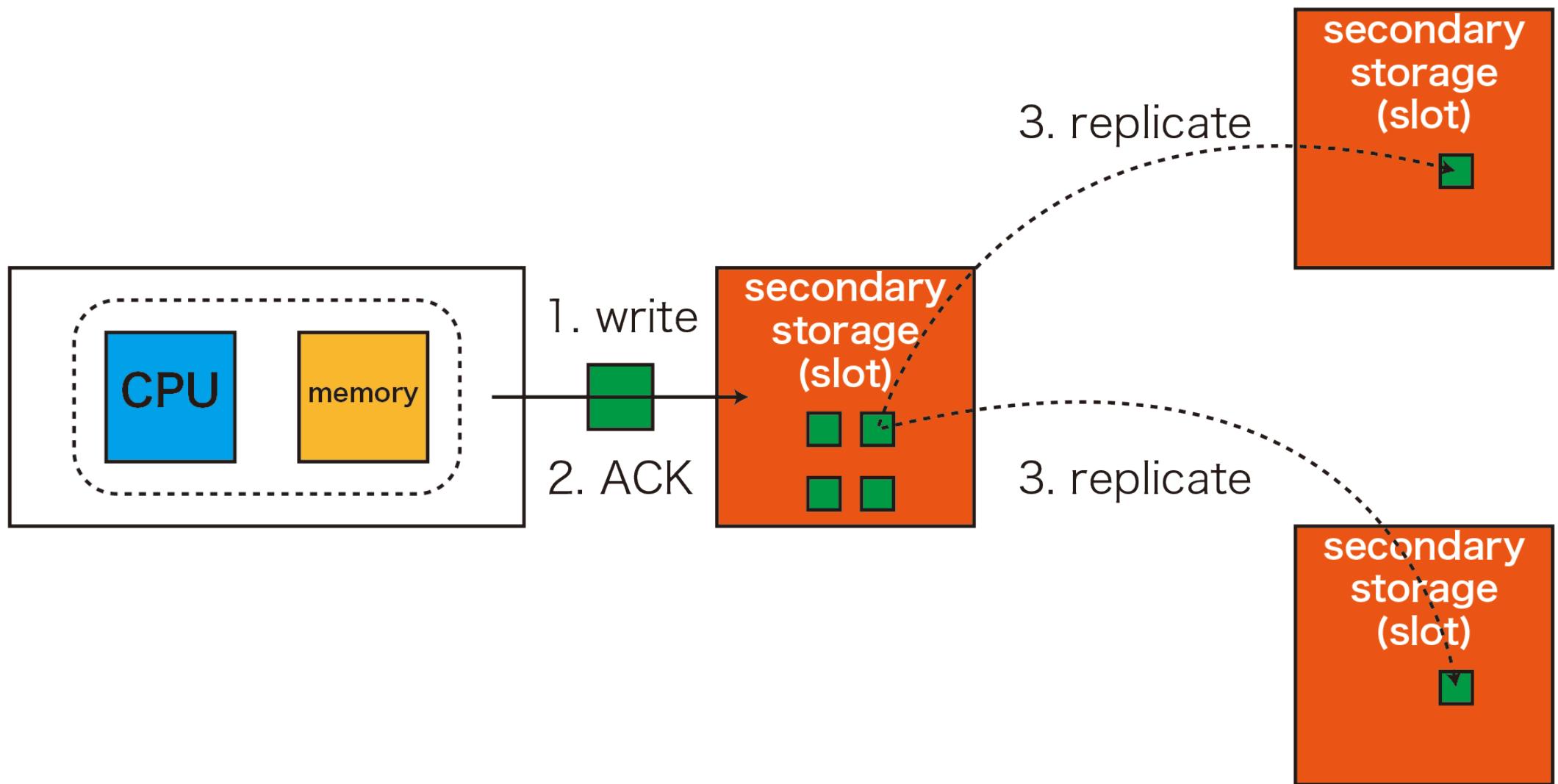




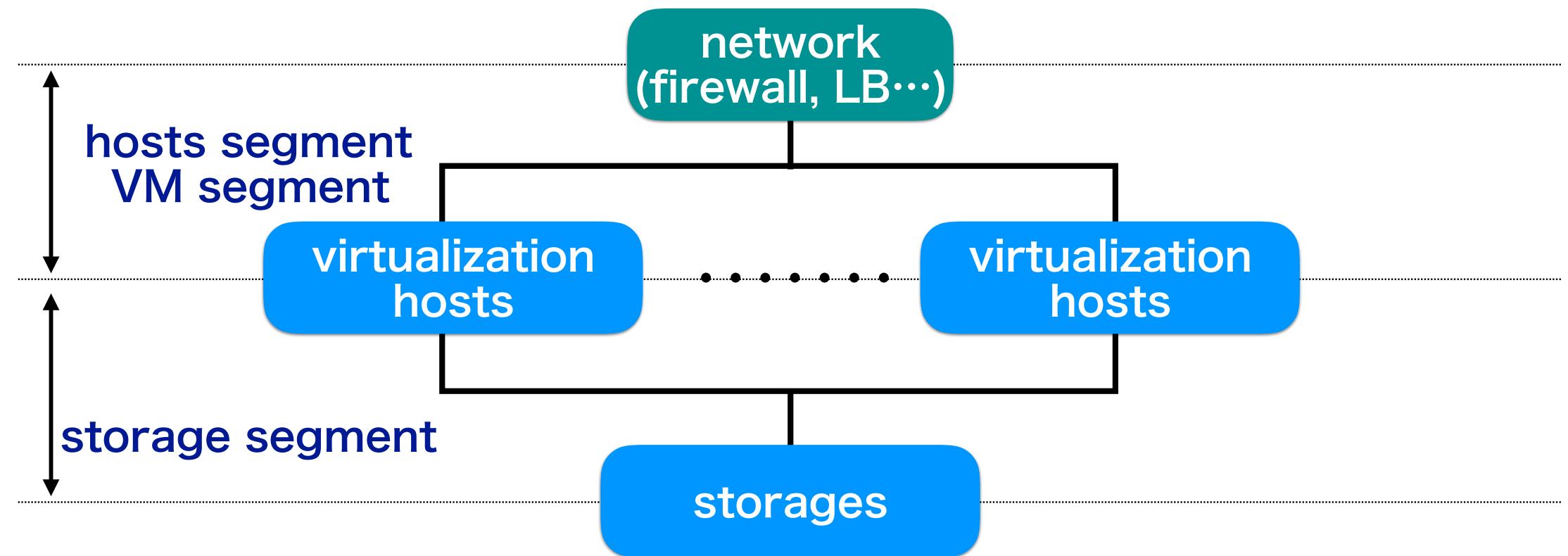
Distcloud

Ver.1

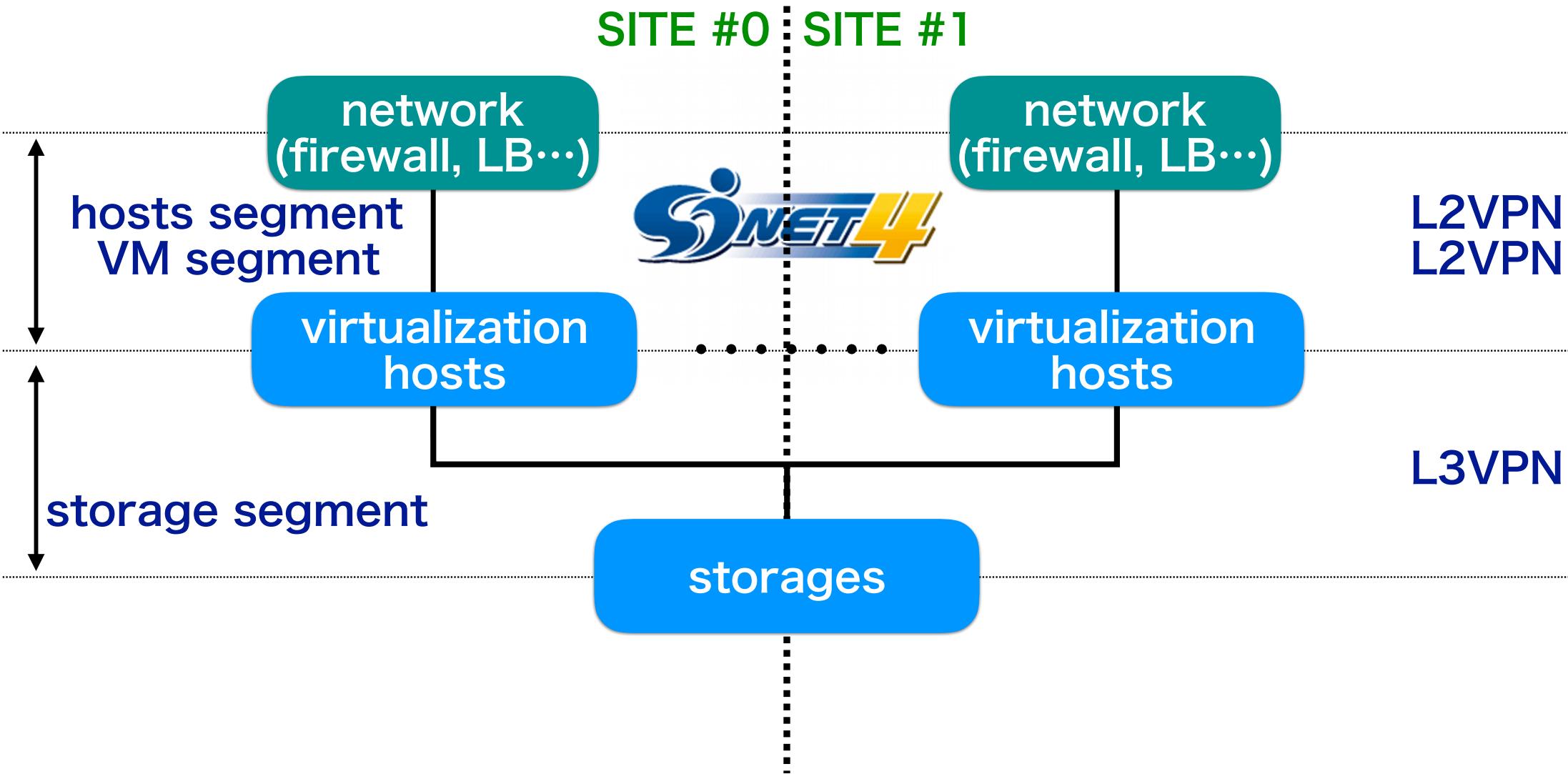
(2011~2014)

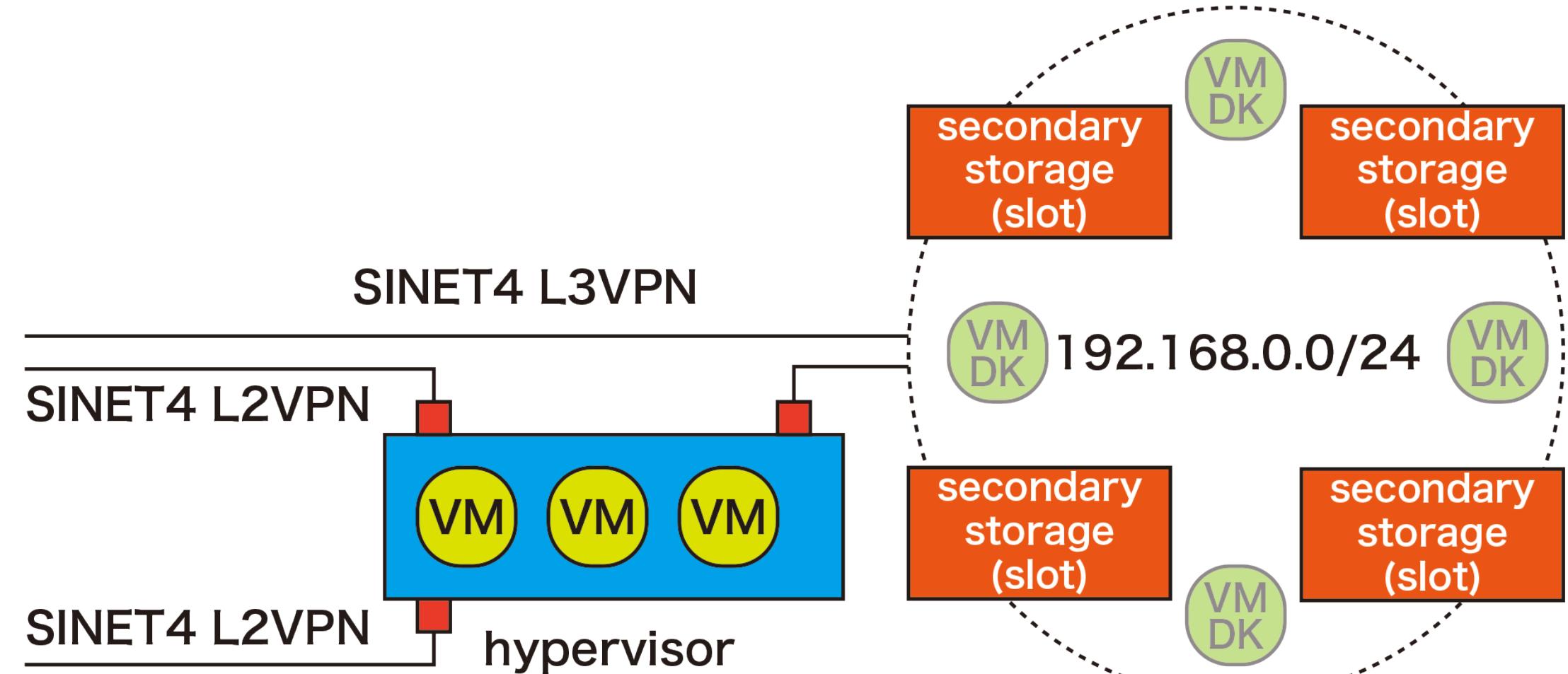


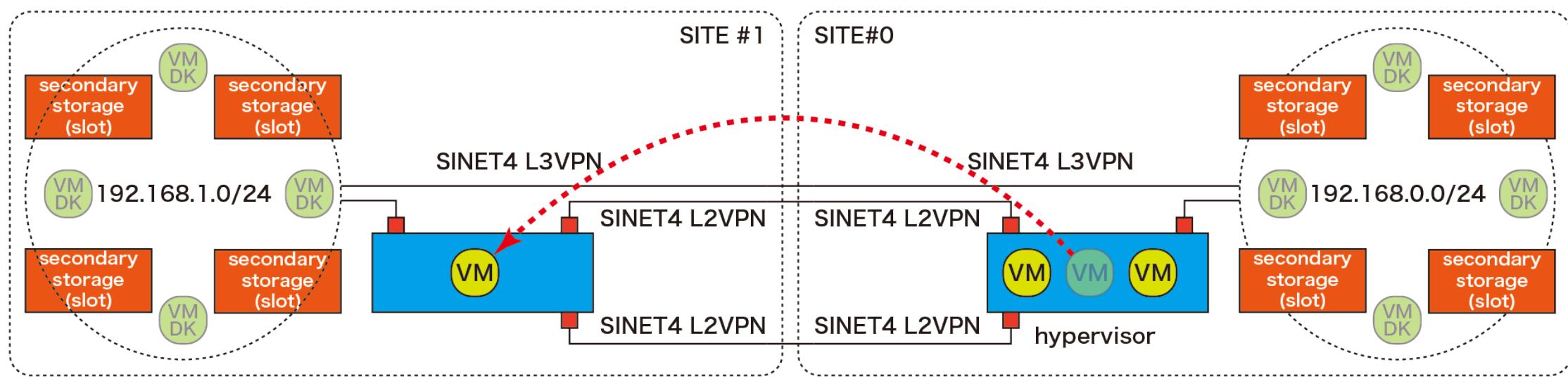
typical virtualization infrastructure



distcloud (ver.1) design and implementation







Distcloud

Ver.2

(2014~2016)

三十六景 神奈川沖
浪裏

葛飾北斎

Disaster Emulation and Simulation Testbed
DESTCloud

O'REILLY®

Chaos Engineering

Building Confidence in System Behavior
through Experiments

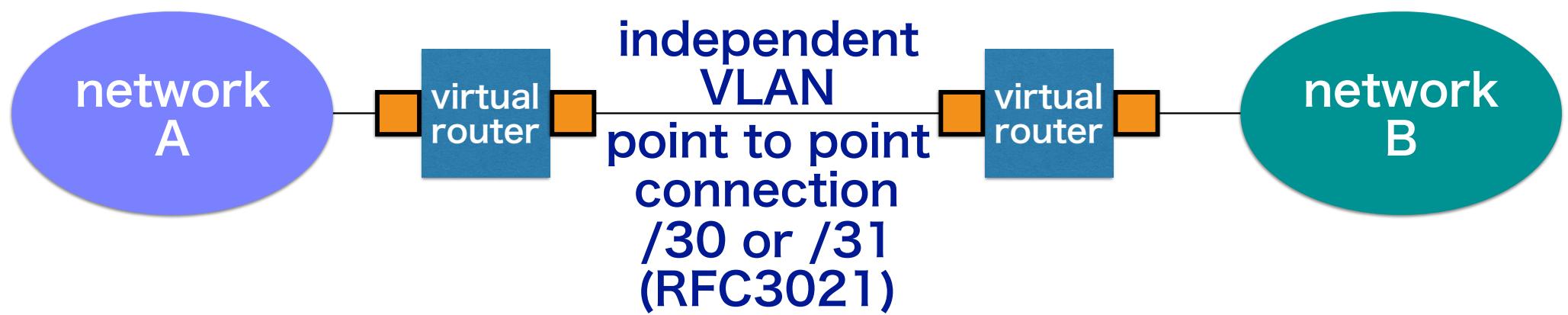


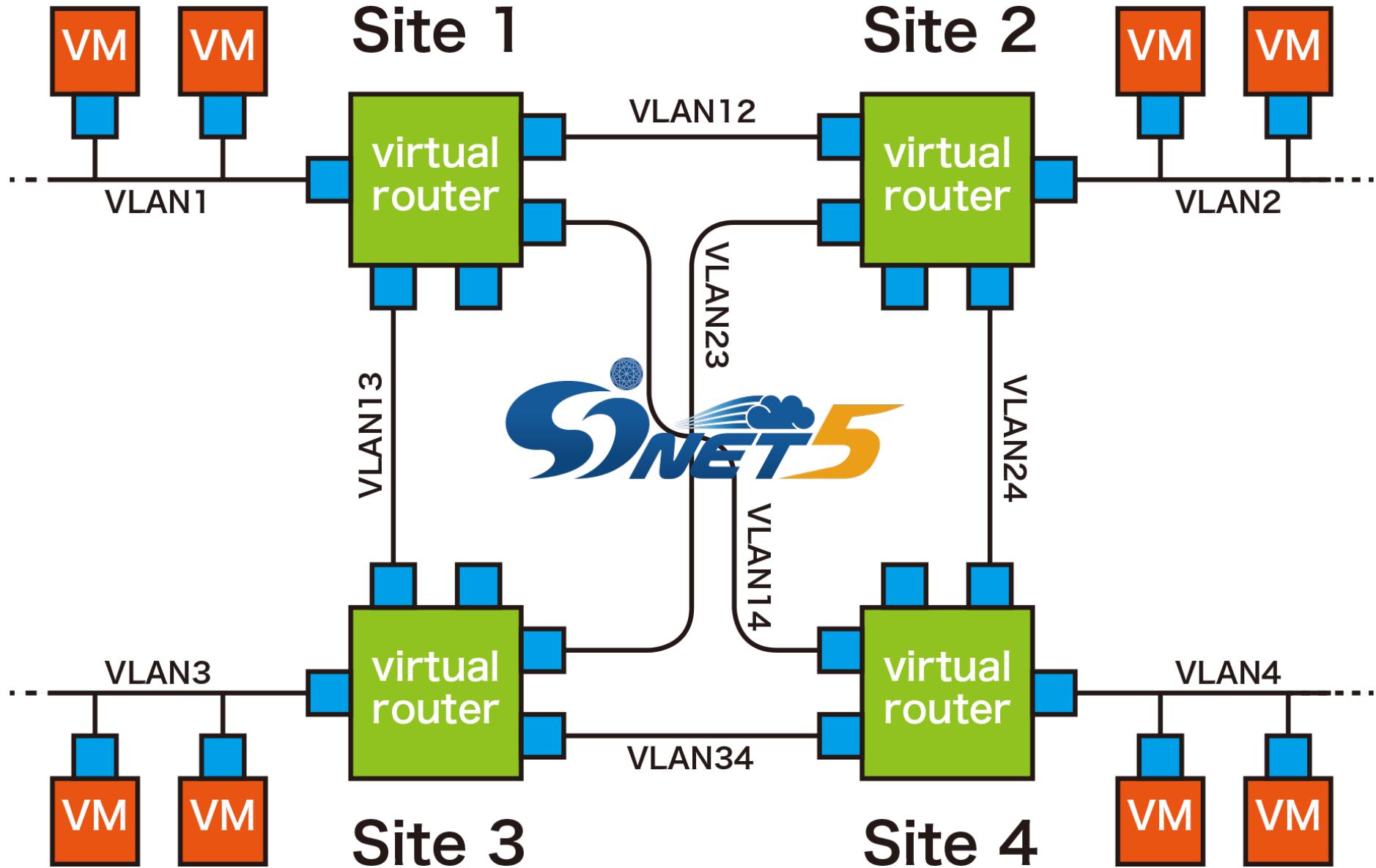
Casey Rosenthal, Lorin Hochstein,
Aaron Blohowiak, Nora Jones
& Ali Basiri

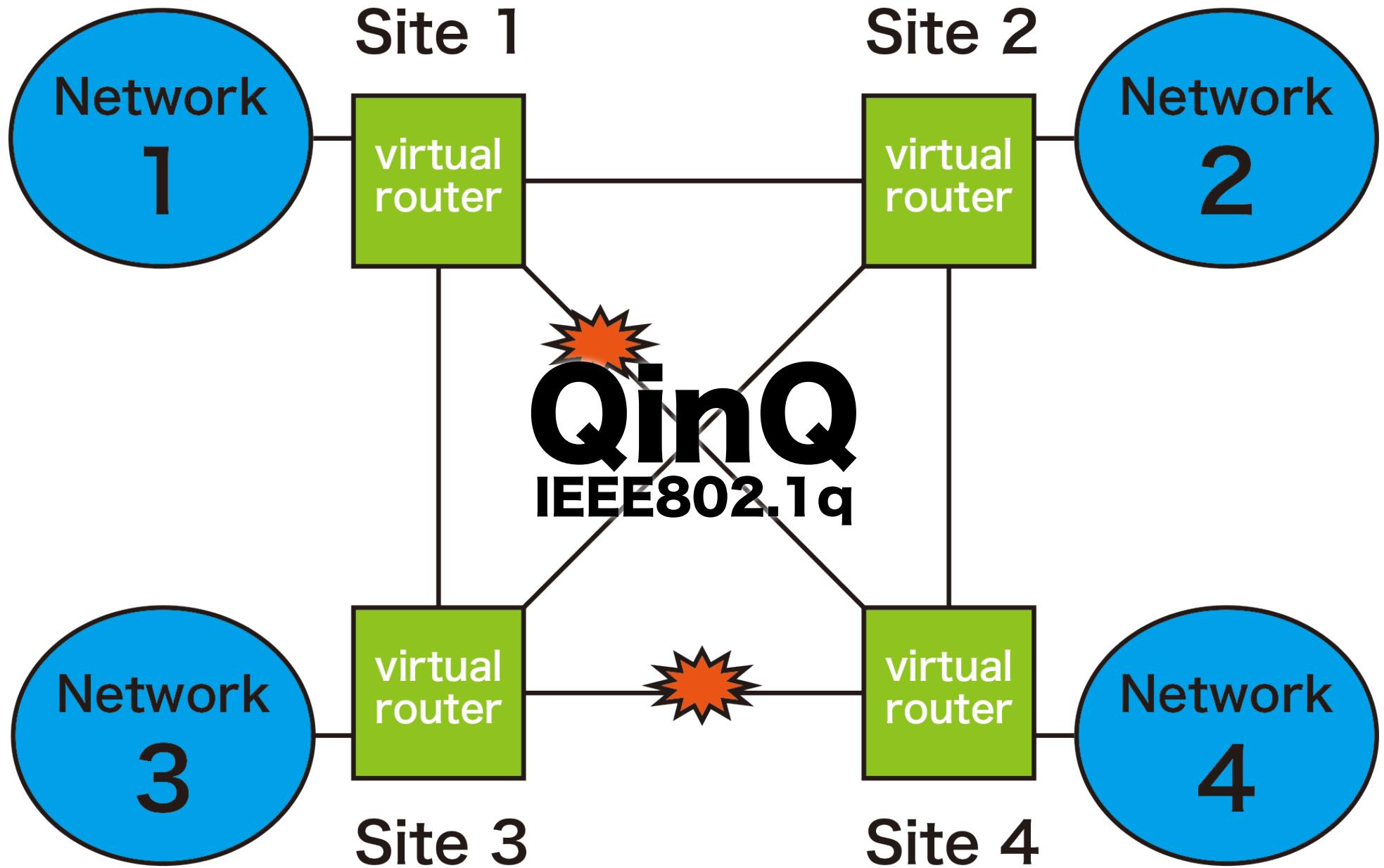
ISBN 978-1-4919-2751-8

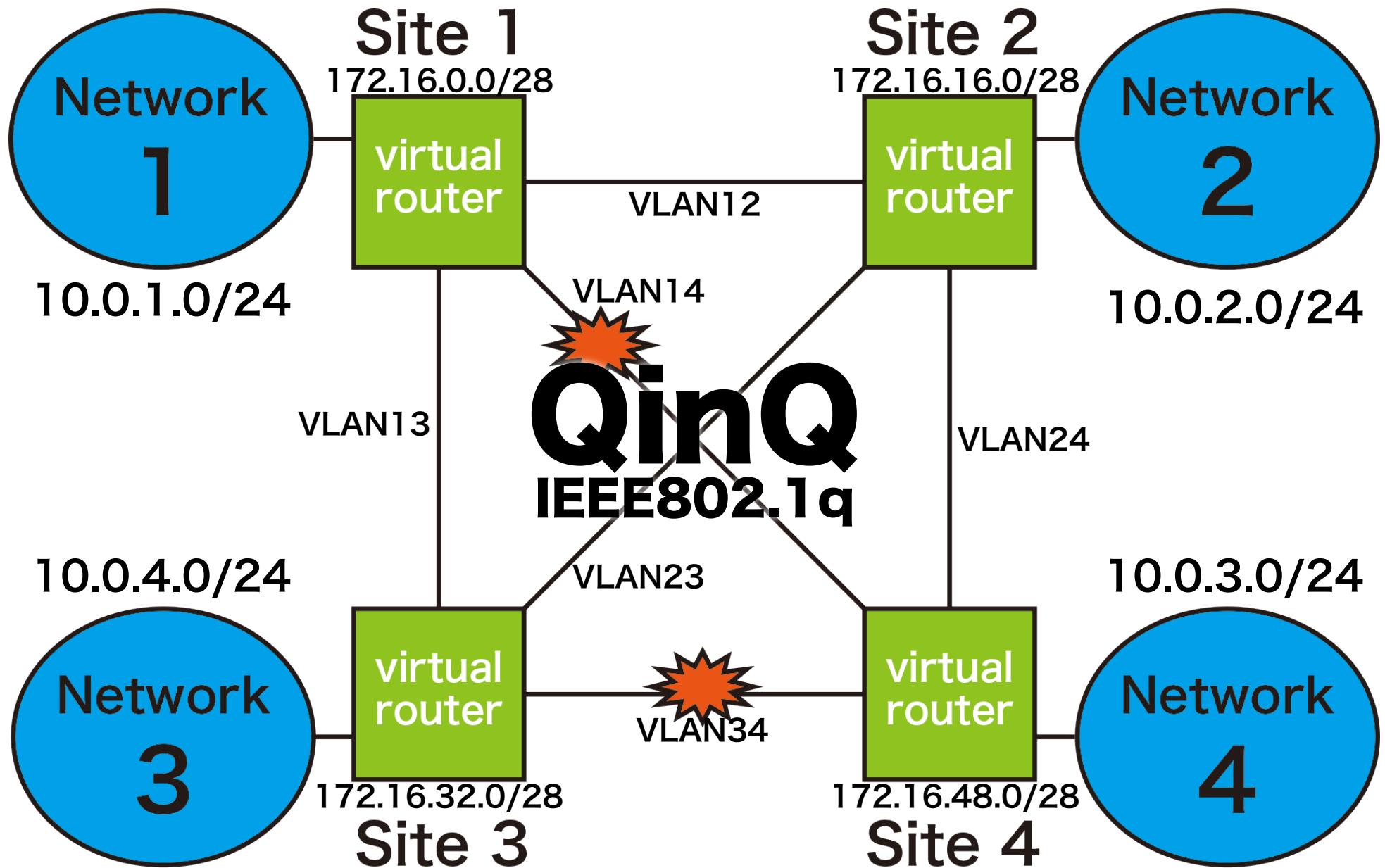


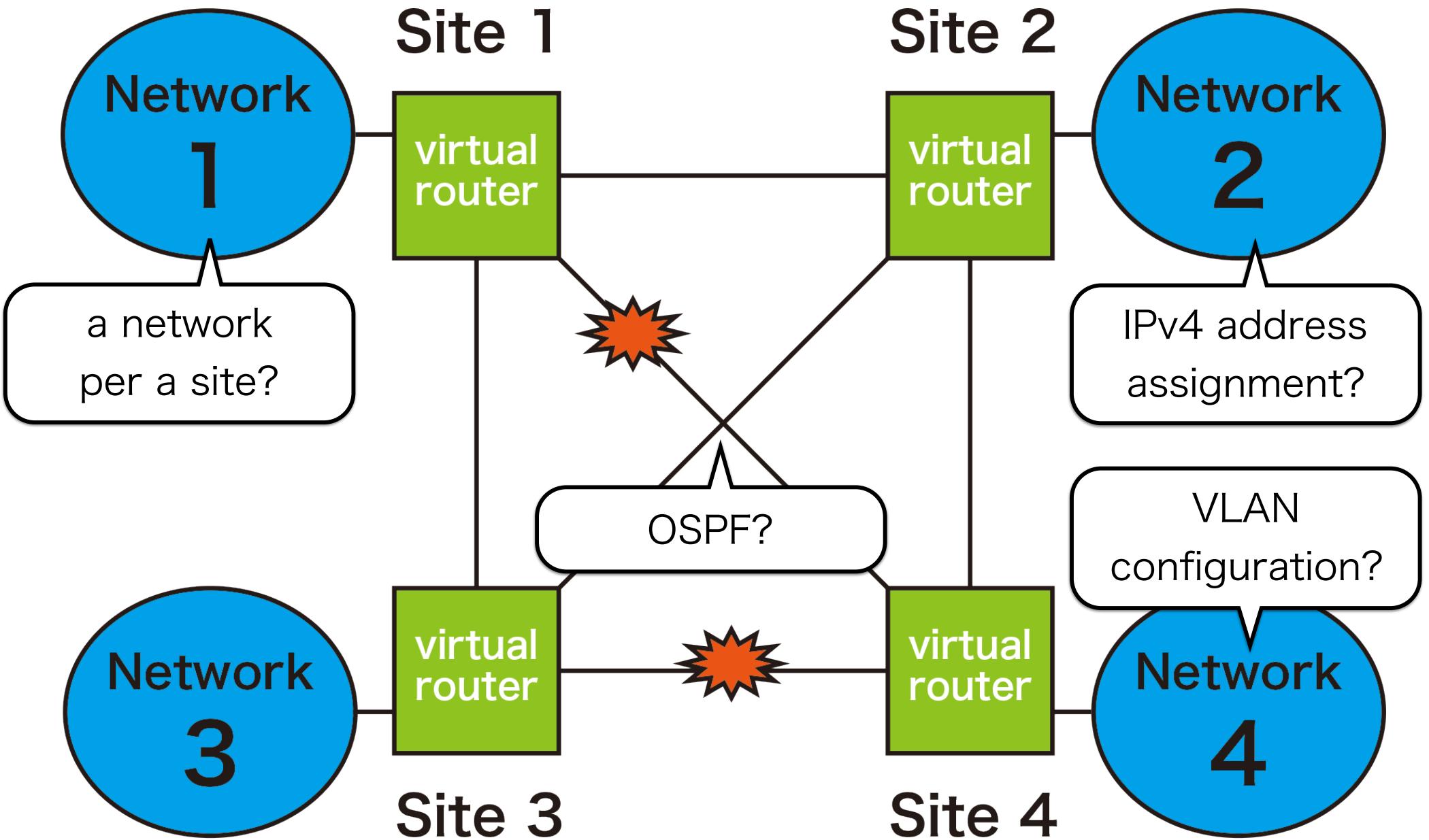
failure injection testing



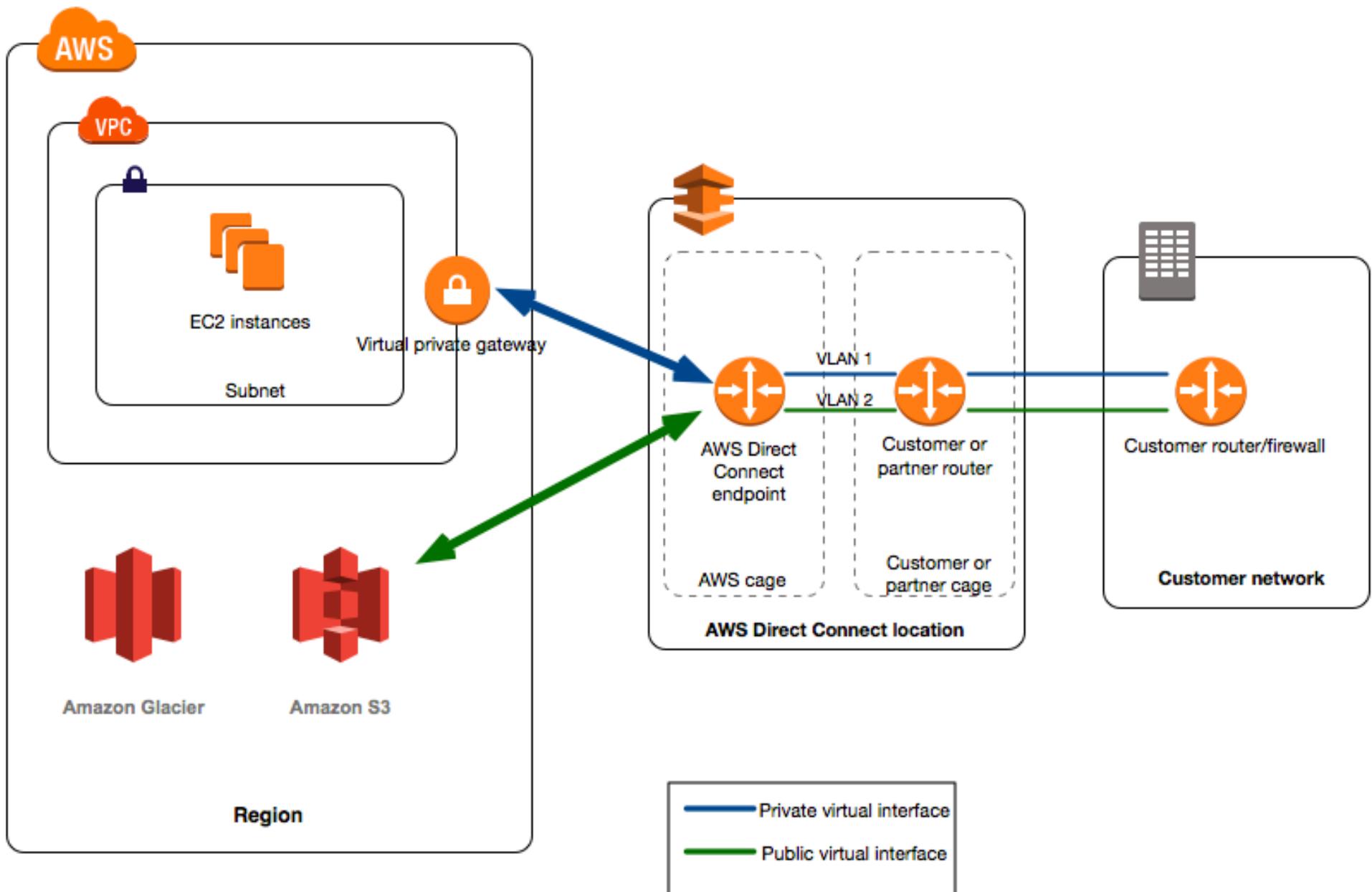








$$\frac{n(n-1)}{2} < 4094$$

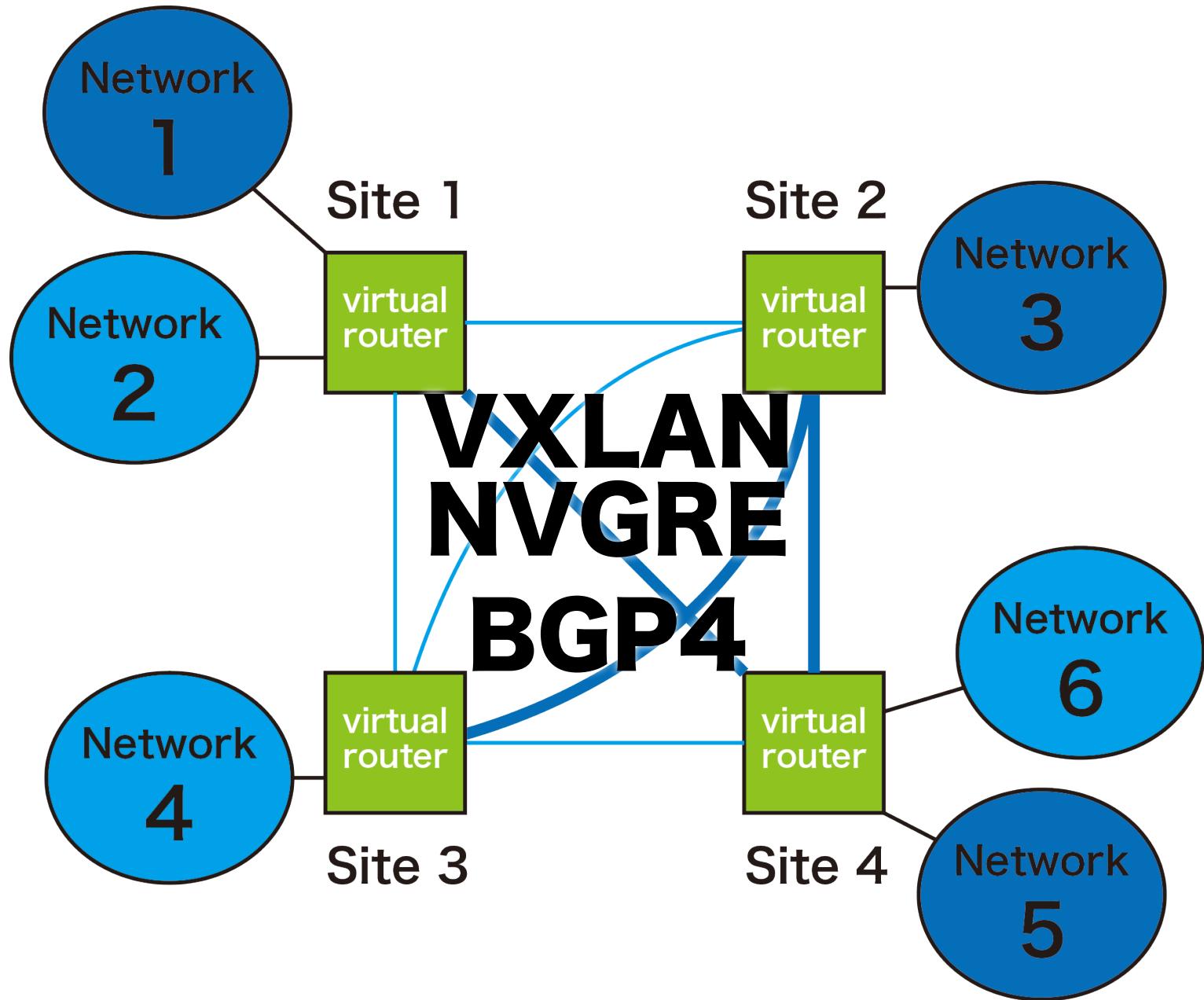




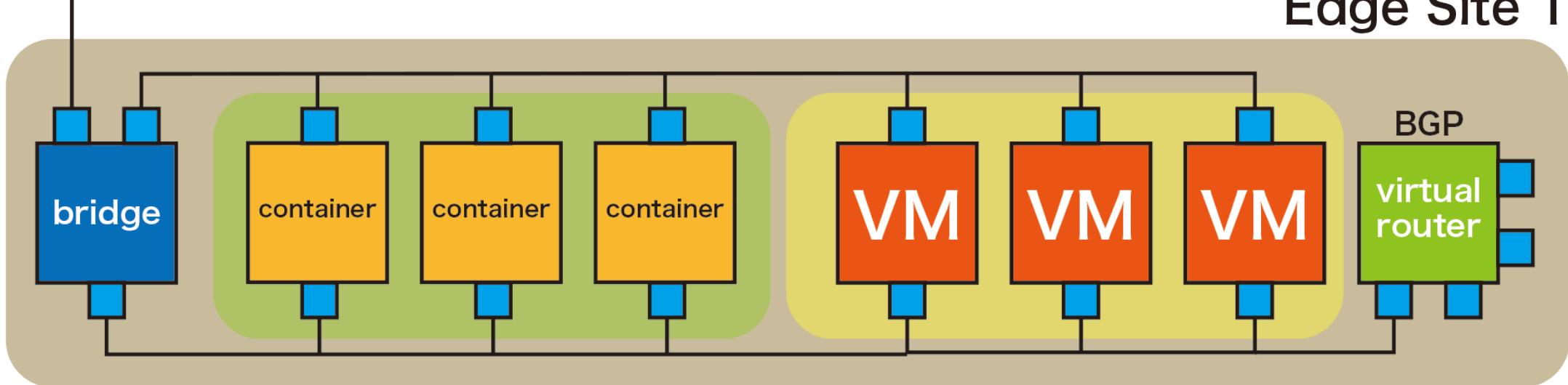
Distcloud

Ver.3

(2017~)



Internet



Distcloud-core

Site 1



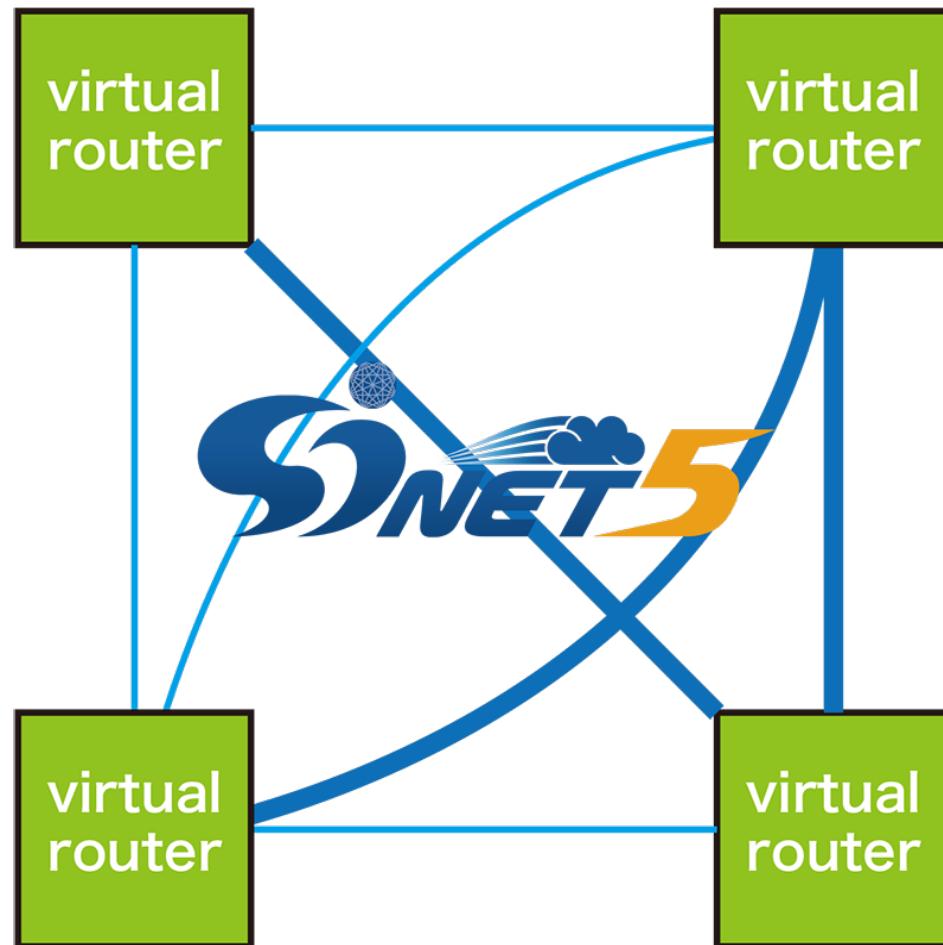
Site 2



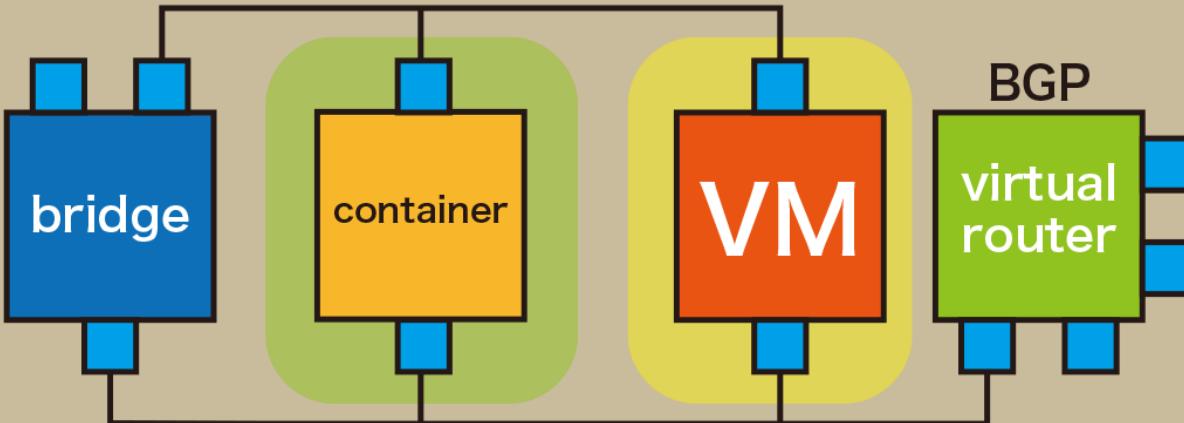
Site 3



Site 4

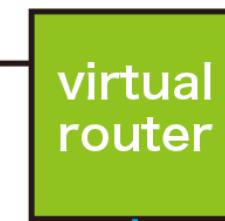


Edge Site 1



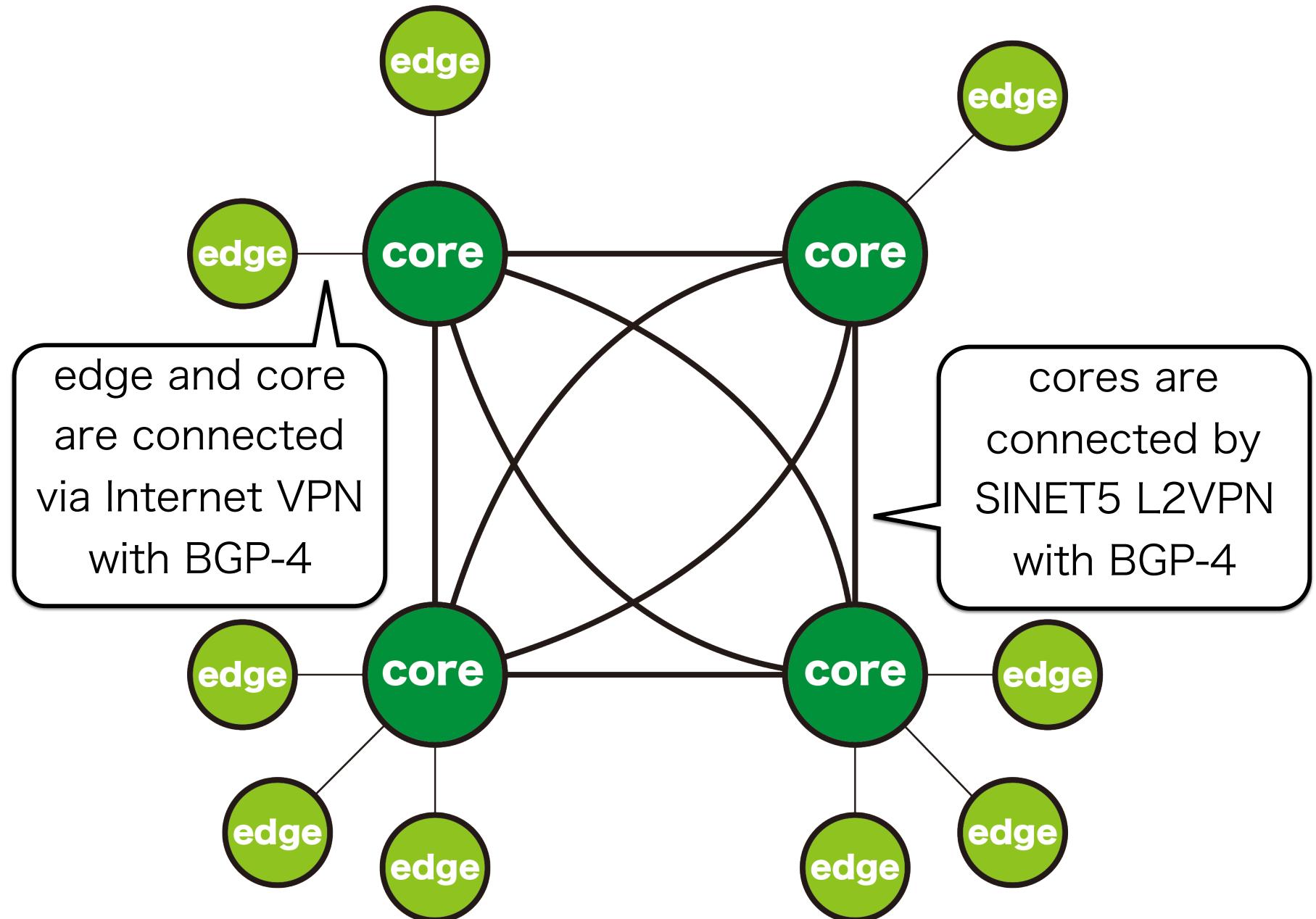
Site 1

Site 2



Site 3

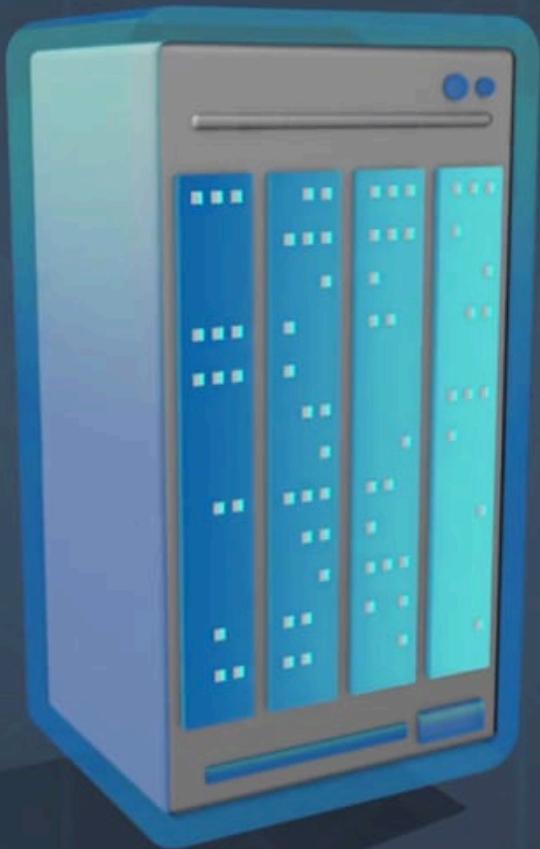
Site 4



Wyos

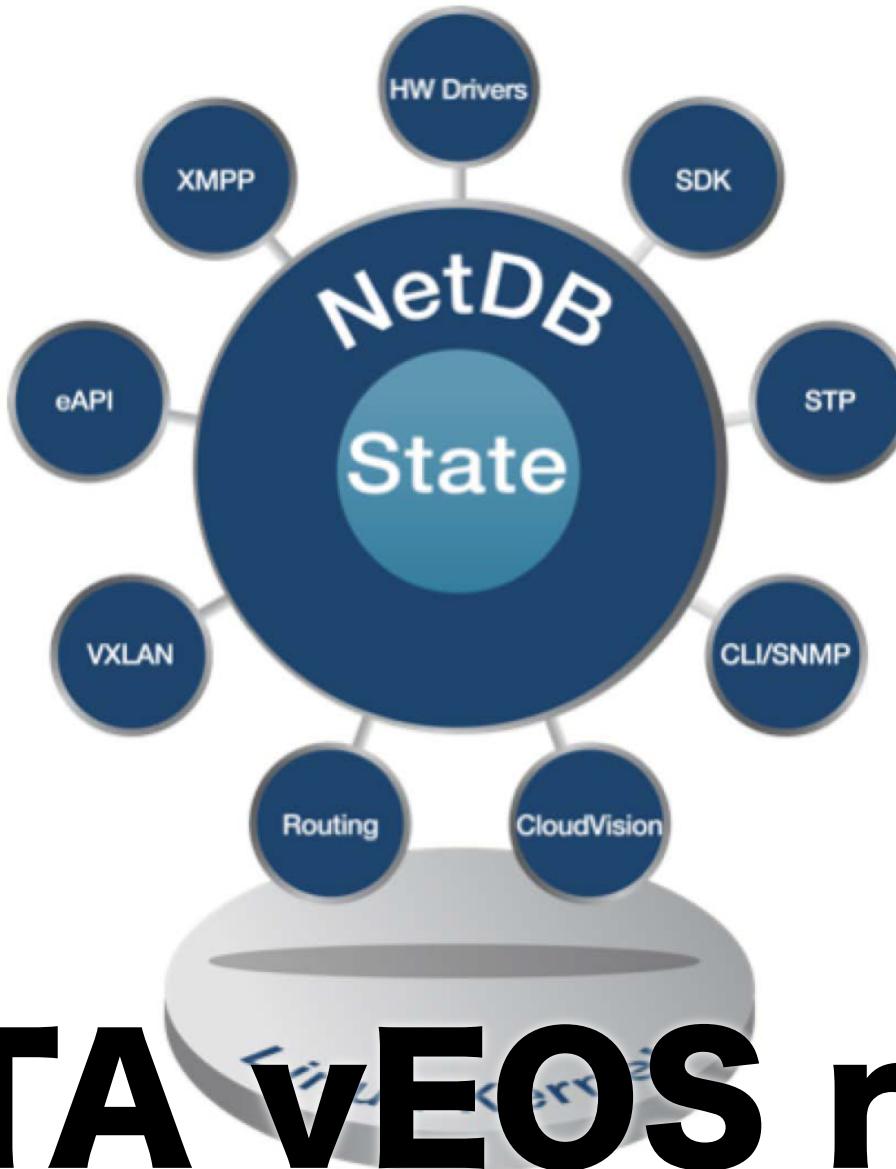
juniper[®]
NETWORKS

Juniper vMX Router





ARISTA



ARISTA vEOS router



Open Source Routing



FR Routing

The logo features the word "FR Routing" in a bold, black, sans-serif font. The letter "R" is partially overlaid by a large, stylized orange arrow graphic. This graphic consists of a thick orange circle with a white center, containing a smaller black circle. A thick orange arrow points upwards from the bottom right towards the top left, crossing the "R". A thin white arrow follows a similar path just inside the orange outline.



15,000USD~







避難場所ネット
infrastructure for evacuee

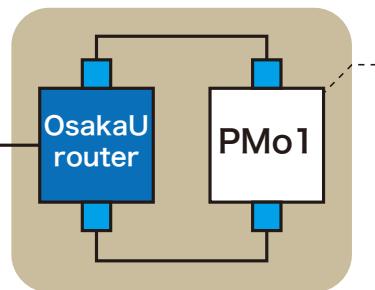


NFV

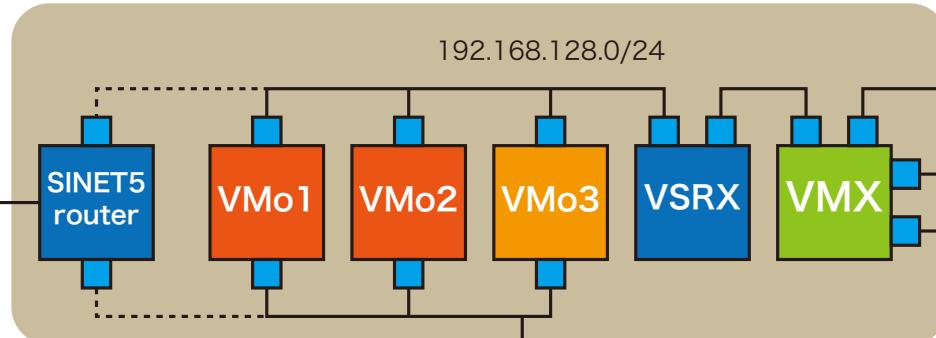
Network Function Virtualization

SINET5

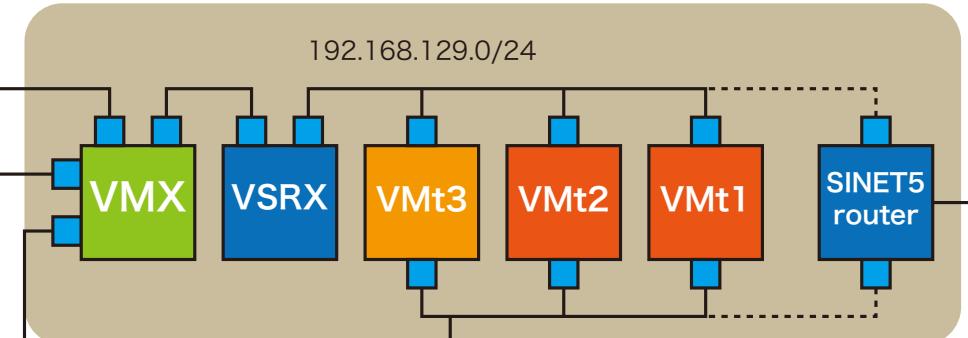
Osaka Univ.



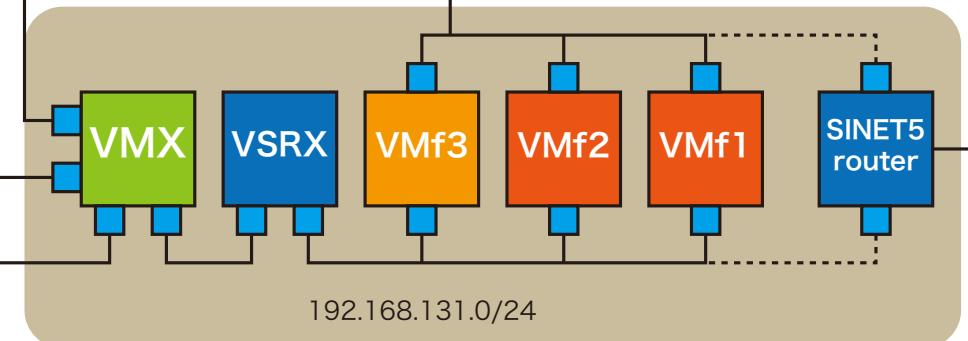
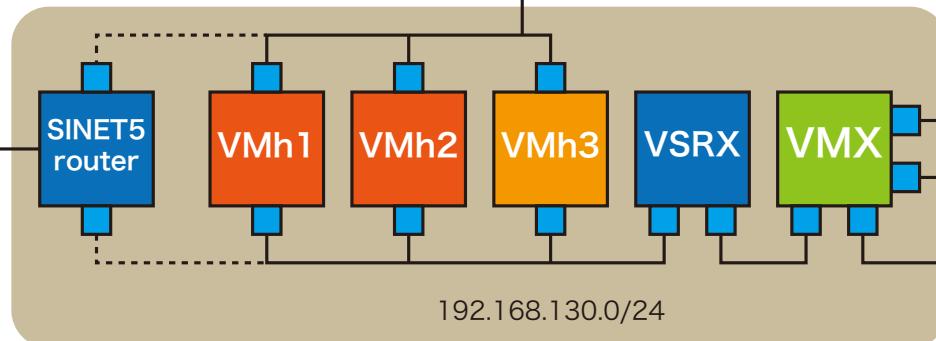
Osaka DC



192.168.129.0/24

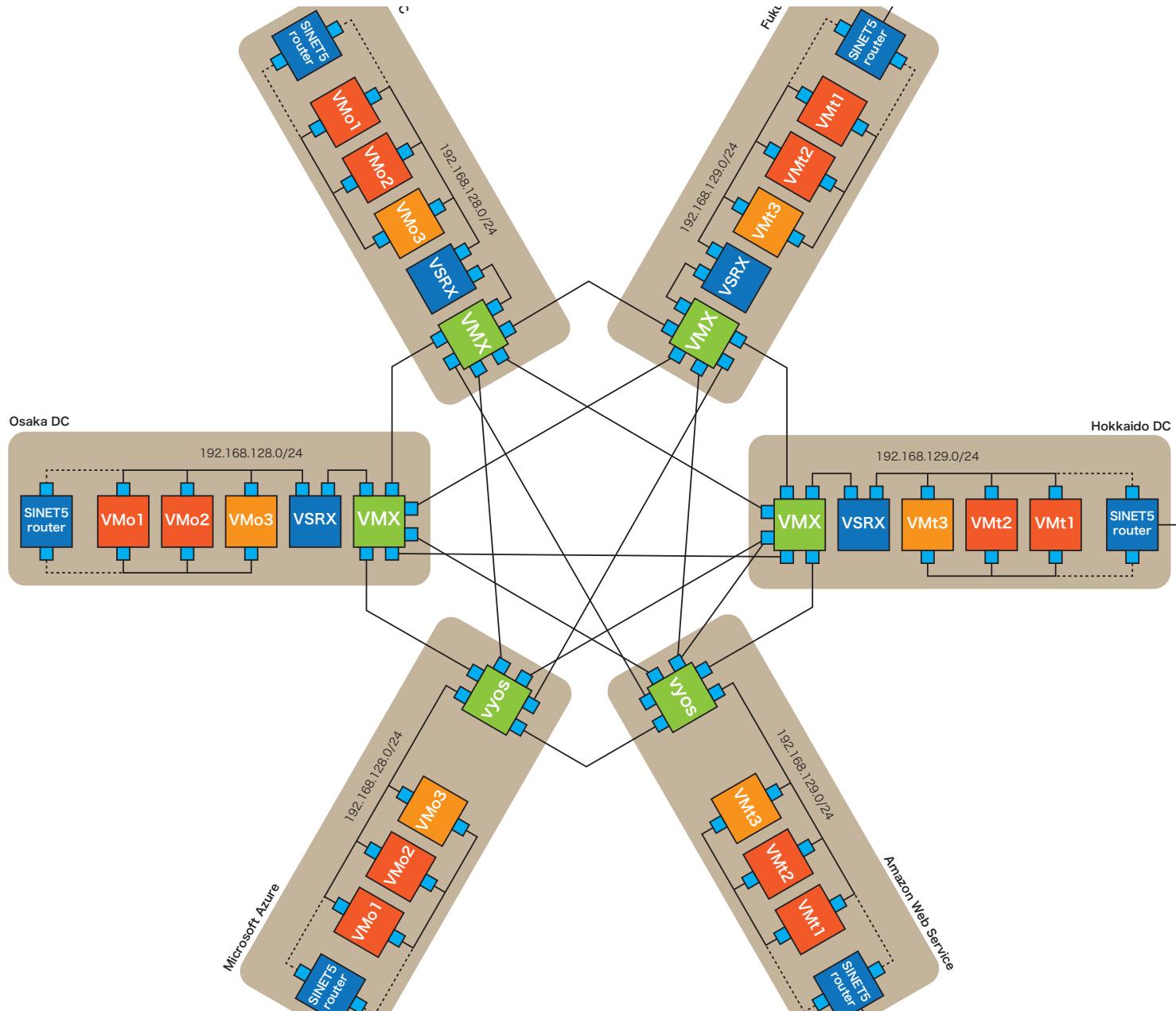


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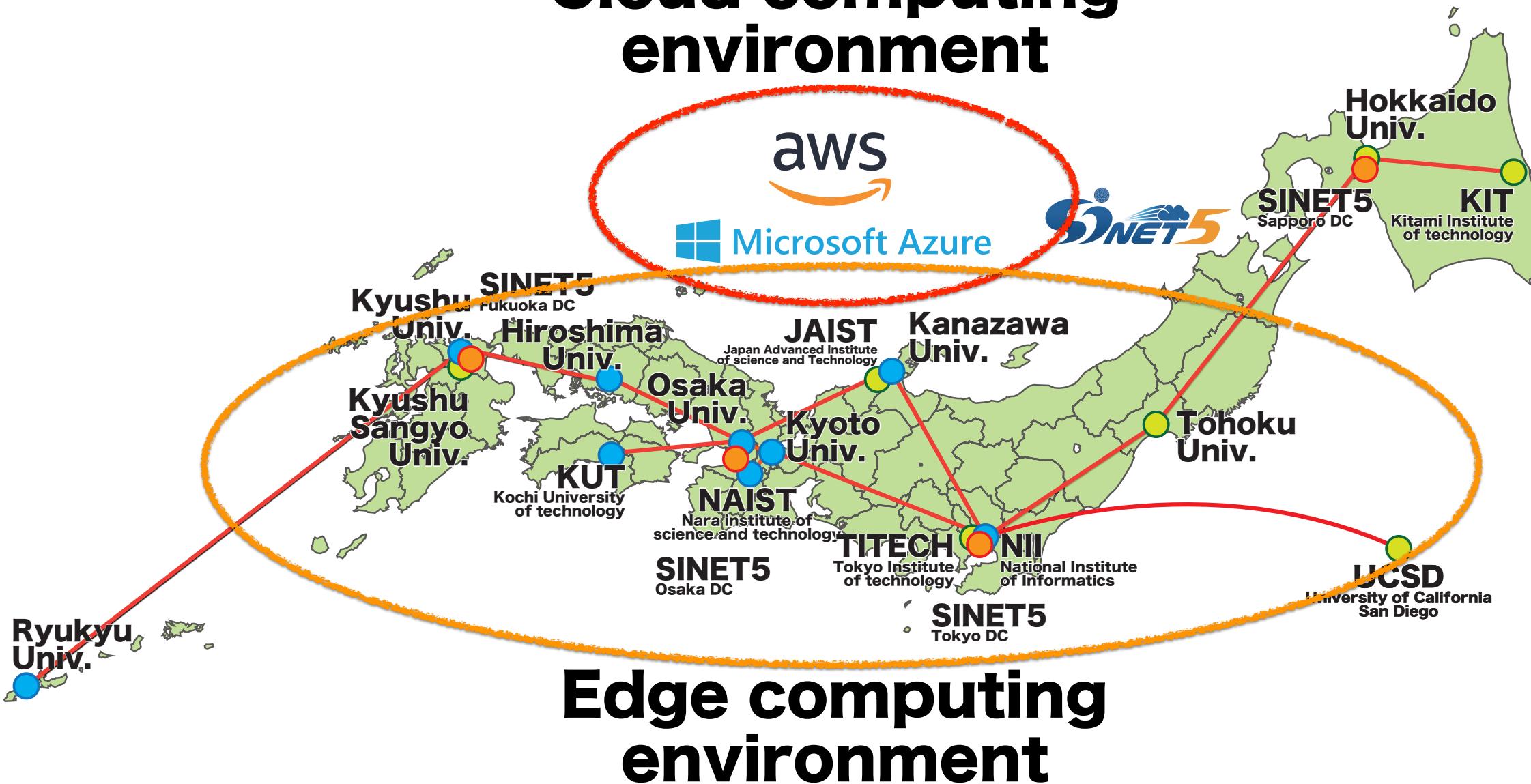
Hokkaido DC

Fukuoka DC





Cloud computing environment



Edge computing environment

**go on to the
next stage**

