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2019 4

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AWS

Amazon CloudFront

Amazon RDS

Amazon QuickSight

AWS Amplify

AWS Server Migration

Service

Azure

AWS

5G

2018

OpenStack Stein

EasyStack

“

TOP100” 2018

SDN NFV

CCBN2019

IPF2019

NFV

5G

Linkerd 2.3

Kubernetes

CNCF

Kubernetes

Prometheus

Envoy

CoreDNS

containerd

Fluentd

Google

Google Cloud Next 2019

Cloud Run

Traffic Director

Kubecost

k8s

kubernetes

4

2019

40

iLnpP2P

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Palo Alto

(SRM)

RedSeal

CASB

Bitglass

7000

D

Aqua Security

6200

C

VDOO

3200

B

2019 4 29

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1. AWS

1.1 AWS Amplify

4 5 AWS Amplify Amplify
GitHub Web
GraphQL API Lambda
React Angular Gatsby Amplify
Amplify GitHub
Amplify Web
AWS

1.2 Amazon CloudFront

4 8 Amazon CloudFront
www.example.com SSL/TLS
CloudFront
CloudFront DNS www.example.com
CNAME CloudFront d11111abcdef8.cloudfront.net
AWS CloudFront API
AWS Certificate Manager SSL/TLS
CloudFront

1.3 Amazon QuickSight

4 10 Amazon QuickSight 10 Amazon QuickSight

QuickSight

50 90 95

n

1.4 Amazon RDS

4 12 Amazon Relational Database Service (RDS)

Amazon RDS

Amazon RDS

RDS for Oracle RDS for PostgreSQL

RDS for MySQL

I/O

1.5 AWS Server Migration Service

Azure

AWS

4 18 AWS Server Migration Service (SMS)

Microsoft Azure

(VM) AWS

Microsoft Azure

AWS

AWS Server Migration Service

AWS

VMware

vSphere Microsoft Hyper-V

VM

Server

Migration Service

Microsoft Azure

VM

Azure

VM

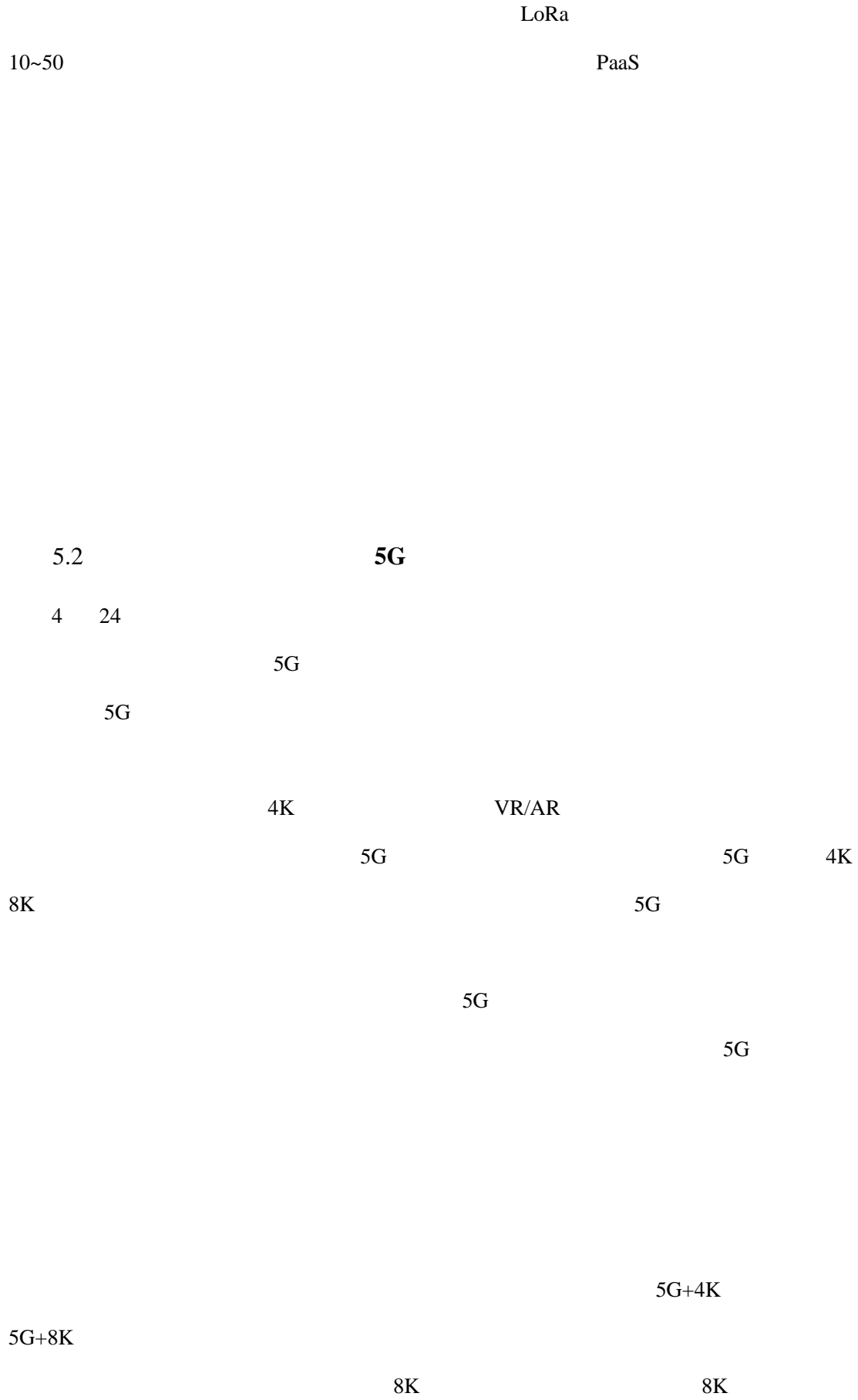
Server Migration Service

2. VMWare

3. GOOGLE

3.1

4 2



8K

5G

4K

4K

5.3 2018

4 25

Gartner

2018

19.6%

11%

8%

2017

4.7

2018

213.4

20

1-2 All in Cloud

6.

6.1

4 19

4 18

6.2

4 25

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5G

IoT

5G

IoT VR 8K AI

5G

100%

IoT

AI

150ms

CTO

CTO

5G

1. Openstack

1.1 OpenStack Stein

4 12 OpenStack 19
Stein 75

1000 OpenStack VMs
GPUs
Stein

-
- 5G NFV
-

OpenStack Stein Kubernetes

2018 OpenStack Kubernetes OpenStack
OpenStack 61%
Stein OpenStack

- OpenStack Magnum Kubernetes Kubernetes
10-12 5
- OpenStack Manila Cinder Keystone
Kubernetes OpenStack
- Neutron OpenStack
- Ironic

5G NFV

- Neutron API
StarlingX
Rocky

Stein

Neutron

OpenStack Nova

- API OpenStack QoS
aliases QoS

- Blazar API

- Placement Stein Nova

API 50% Train Nova Placement
Nova Placement

- Sahara Hadoop +

Jonathan Bryce, OpenStack

OpenStack

Kubernetes

2. Easystack

2.1 EasyStack

TOP100

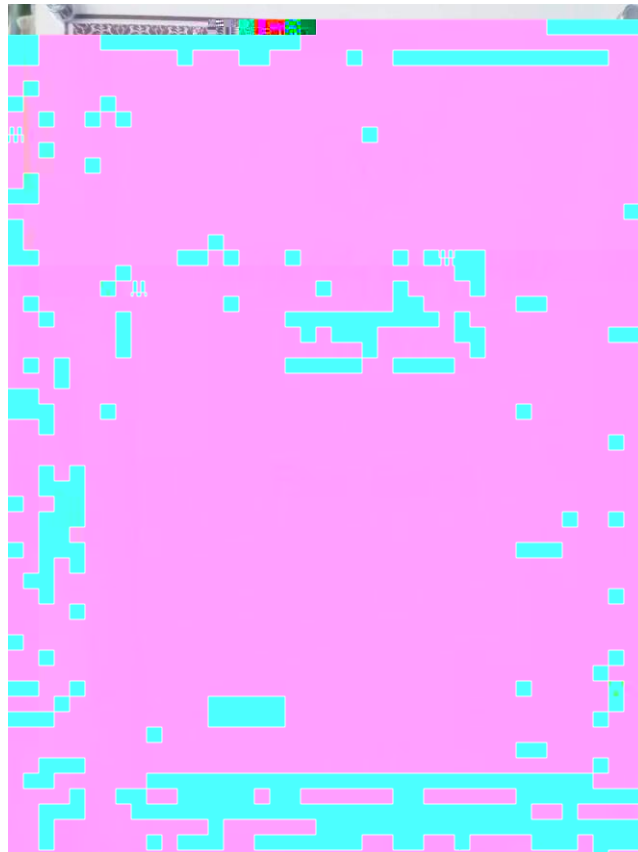
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TOP100

100

EasyStack

TOP100



3. 99CLOUD

3.1 2018 SDN NFV

4 17 SDN/NFV/AI IT168 C114 2018

SDN NFV

SDN 46

2019

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V7.0

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CPU

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web

DDOS

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ATCA

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101

14

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CCBN-BDF

CCBN2019



1.4

GPU

IaaS

PaaS SaaS

IaaS IaaS

PaaS PaaS

SaaS SaaS

3.

3.1

|

NFV

4 18

2019

SDN/NFV/AI

NFV



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SDN

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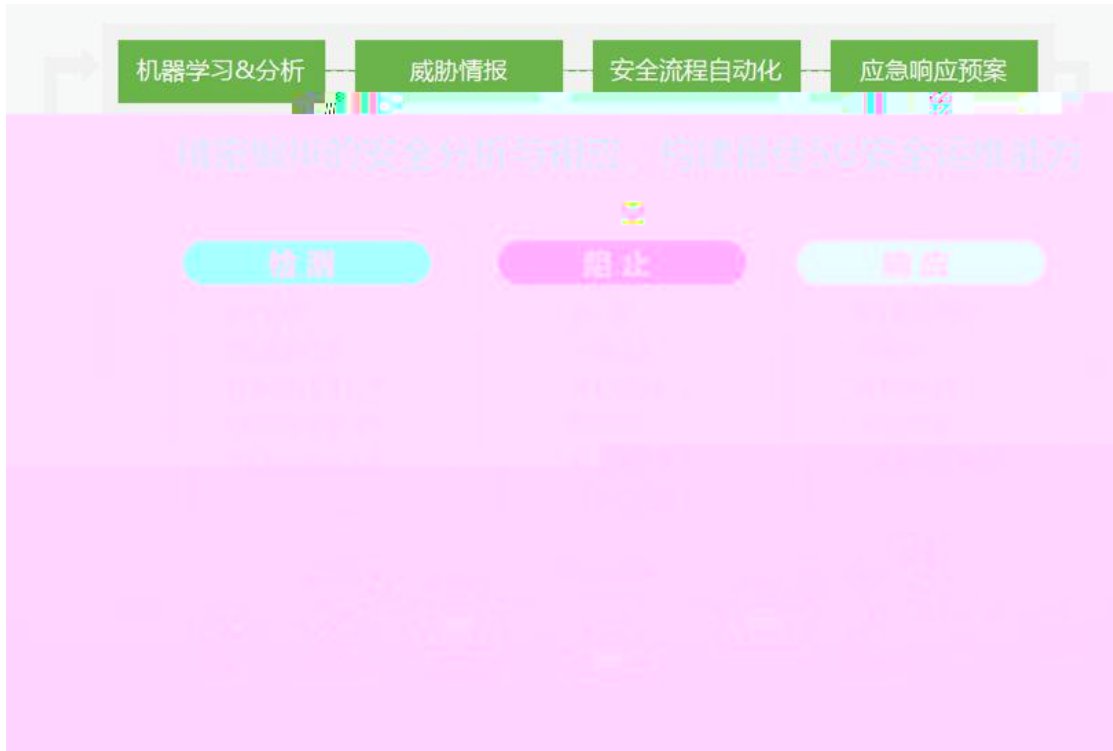
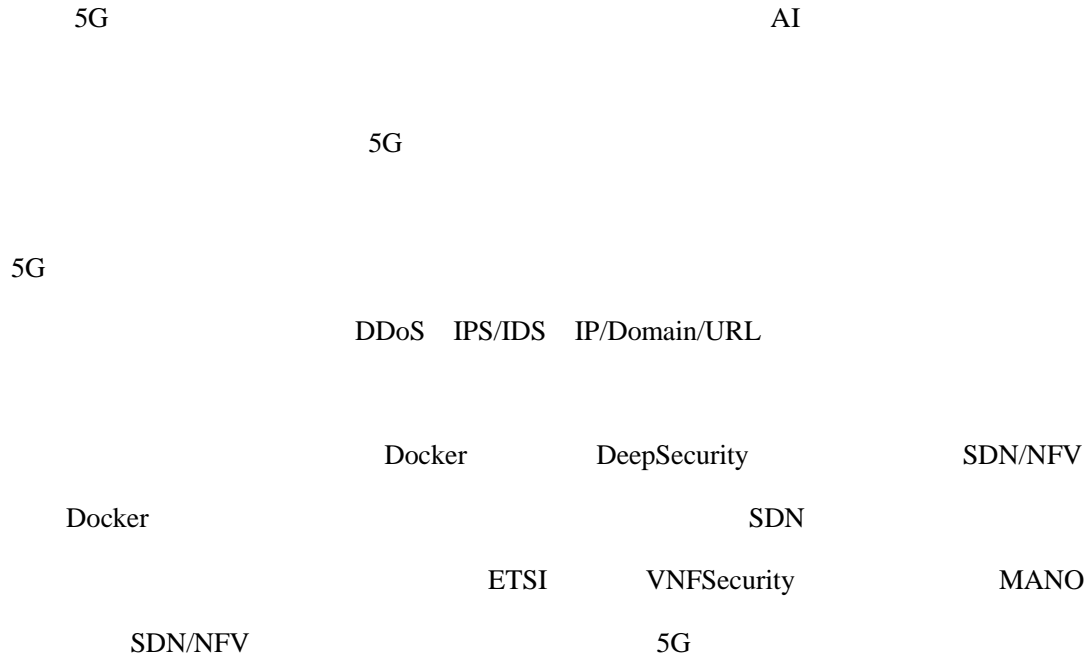
5G

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5G 6



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2018

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ICG

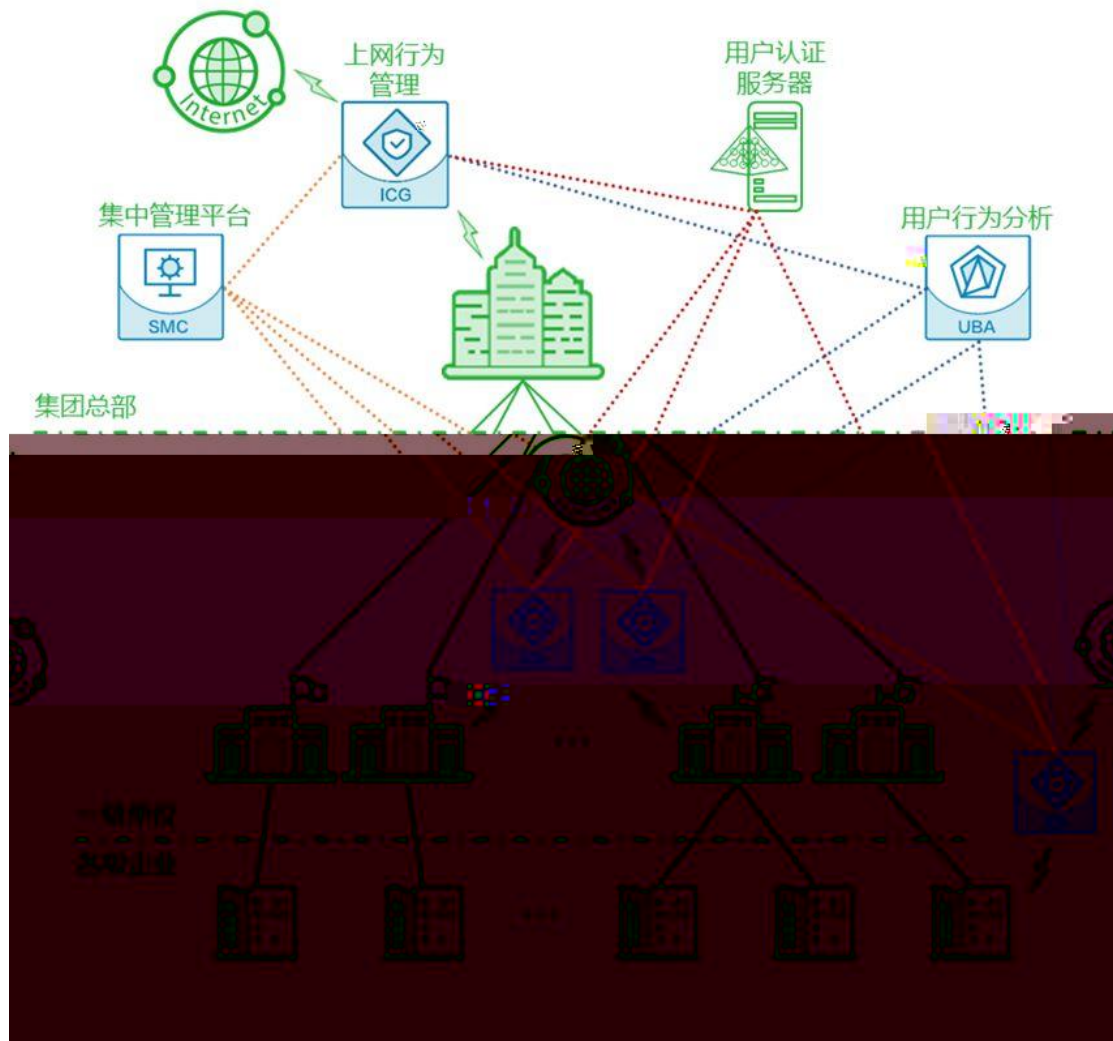
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BAAS

2019

NGSOC

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2) TLS Kubernetes

24

3) TLS

2.3 Linkerd

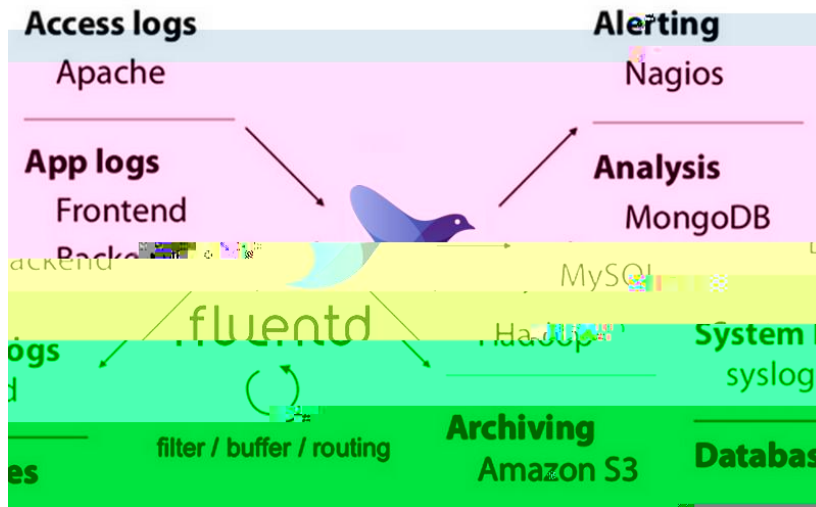
Kubernetes

2. Fluentd CNCF

CNCF 2019 4 11 Fluentd

CNCF 6 Kubernetes Prometheus

Envoy CoreDNS containerd



Fluentd 2011 Treasure Data Sadayuki Sada Furuhashi

2016 11 Fluentd 6 CNCF

Fluentd RDBMS NoSQL IaaS SaaS

Hadoop

3. Google Cloud Run Traffic Director

Google Cloud Next 2019

Google Cloud

Cloud Run Traffic Director

Cloud Run

Knative + Kubernetes + gVisor

Serverless

HTTP

Kubecost (S3) AWS
Prometheus

5. kubernetes

CVE-2019-1002101 kubectl cp

kubernetes kubectl cp (CVE-2019-1002101)

kubectl Kubernetes 1.11.9,1.12.7,1.13.5 1.14.0

kubectl cp

1)

2) stream

3) apiserver kubelet runtime

4) stream tar

kubernetes/pkg/kubectl/cmd/cp.go copyToPod

copyFromPod

tar

kubectl cp

Kube-proxy IPVS flag ipvs-strict-arp

kube-proxy ipvs clusterIP/externalIP kube-ipvs0

dummy ipvs

1.13

echo 1 >/proc/sys/net/ipv4/conf/all/arp_ignore

echo 2 > /proc/sys/net/ipv4/conf/all/arp_announce

IPVS kube-ipvs0 dummy ip ARP pr

#70530 ipvs load balancer service

(issue:#59976)

buf fix loadbalancer

CNI ARP

1.13

issue#72779 kube-proxy v1.13.0 and 1.13.1 brokes services with externalIPs

issue#71555 kube-proxy/IPVS: arpignore and arpanounce break some CNI plugins

bug fix kube-proxy ipvs-strict-arp 0

ARP 1

CVE-2019-3874

Matteo Croce Natale Vinto Andrea Spagnolo

Kubernetes Pod Root

4. iLnkP2P

iLnkP2P

iLnkP2P

ID

Paul Marrapese

iLnkP2P

200

39%

19%

7%

ID

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GGGG HHHH IIII MMMM ZZZZ

5.

2019

2019

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IPTV OTT

OTT

6.

86% 97%

2.

2.1 Aqua Security 6200 C

4 3 Aqua Security Insight Partner 4 6200 C
Aqua Security

2.2 Bitglass 7000 D

4 8 Bitglass Future Fund 4 7000 D
Bitglass CASB

2.3 VDOO 3200 B

4 24 VDOO 83North 7 3200 B VDOO