

1

2

1

1

1

2

4

3

4

5

5

6

1-2

7

8

50%

7

9

10

1

2

3

8

11

12

13

14

15

2

1

TCP UDP

Packet Tracer
VMWare Window Server Web
FTP DNS E-mail DHCP
Windows Linux

C

C

C

Java PHP

2

OSI TCP/IP IP TCP UDP
ARP ICMP IP

X.25

IP

Windows

Windows Server 2012

Windows

DHCP NAT WEB

FTP

Windows

Windows

NTFS

DHCP DNS Web FTP
IP

Linux

Linux

Linux

Linux

Linux

Linux

Shell

Linux

Linux

Shell

Linux

Windows

Server

Web

Web

Linux

Linux

Linux

Samba

Samba

Samba

Windows Server 2012

NAS

iSCSI

NAS

SAN

NAS

SAN

Web

WEB

PHP

Web

HTML
 Cookie Session
 PHP
 JavaScript
 PHP MySQL
 HTML
 PHP
 PHP
 MySQL
 PHP +
 PHP WEB
 PHP MySQL
 PHP HTML PHP
 PHP MySQL PHP MySQL
 PHP
 3 PHP
 PHP
 FORM PHP PHP MySQL
 Cookie Session PHP
 SQL

SDN

OpenStack

IAAS PAAS SAAS

OpenStack

Hadoop

Hive

Hbase

Mahout

Pig

Flume

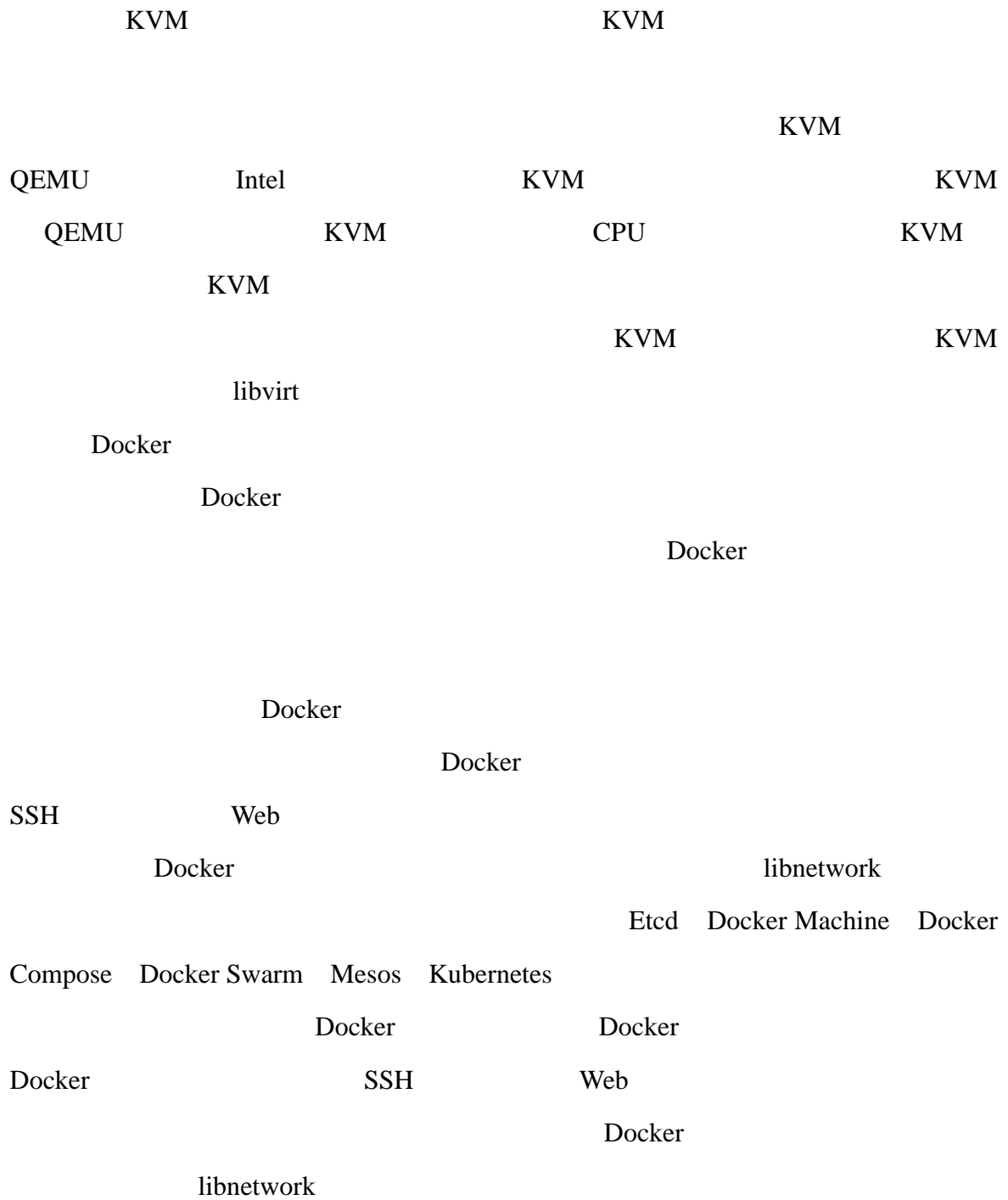
Spark

Hadoop Hive Hbase Mahout

Pig Flume Spark

Hadoop Hive Hbase

Mahout Pig Flume Spark



	Hadoop		Hive		Hbase
	Mahout	Pig		Flume	
Spark					
			Hadoop	Hive	Hbase Mahout
Pig	Flume	Spark		Hadoop	Hive Hbase
Mahout	Pig	Flume	Spark		

AutoCAD

AutoCAD + Visio

AutoCAD
CAD CAD CAD CAD

Python

Python

Python

Python

Tkinter

Python

Python

XML

Python

Python

Android

Android

Android

Android

Android

Android

SQLite

Android

Linux

Linux

Linux

Web Nginx/HAProxy Keepalived LVS Keepalived/DR DNS
ZooKeeper

Linux
Python Python Linux
Fabric

4

IP vlan
rip ospf ACL
ACL

3

2600

135

50%

752

29% 41

1848

71% 94

372

14% 20

4

4

--	--	--	--	--	--

5

16 18 18 18 18 20
/

1 99000742B

17	99000602A		1	16	16	0	16						
18	99000582B		2	32	16	16			32				
19	99000172B	(1)	2	12	6	6	12						
20	99000182B	(2)		12	6	6			12				
21	99000192B	(3)		12	6	6				12			
22	99000572B		2	32	28	4				2/32			
23	99000632B	(1)	2	16	8	8	16						
24	99000642B	(2)		16	8	8		16					
25	99000212C		2	56	0	56	56						
26	99000202A		1	12	12	0	12						
			39	716	384	332	11/280	8/166	4/156	5/106	8	0	
1			2	36	18	18					36		
			2	36	18	18	0	0	0	0	36	0	
			41	736	402	350	11/280	8/166	4/156	5/106	44	0	
1	01040010B		4	70	28	42	6/70						
2	01040020B		5	84	42	42	6/84						*
3	01040040B	C	6	108	54	54		6/108					
4	01040100B		6	108	54	54			6/108				
			21	370	178	192	12/154	6/108	6/108	0	0	0	
			21	370	178	192	12/154	6/108	6/108	0	0	0	
1	01040060B	Web	4	72	36	36		4/72					*1+X
2	01040050B		6	108	54	54		6/108					*1+X
3	01040070B	Windows	4	72	36	36			4/72				*
4	01040080B	Linux	6	108	54	54			6/108				*
5	01040090B		4	72	36	36				4/72			*
6	01040130B	Linux	4	72	36	36				4/72			*
7	01040150B	PHP +	6	108	54	54				6/108			
8	01040120B		4	64	32	32					4/64		*
			38	676	338	338	0	10/18 0	10/18 0	14/25 2	4/64	0	
			38	676	338	338	0	10/18 0	10/18 0	14/25 2	4/64	0	
1	01040181B		4	72	36	36				4/72			
	01040231B		3	54	27	27				3/54			4
	01040271B		4	72	36	36				4/72			
3	01040111B		5	96	48	48					6/96		
	01040241B	Docker	4	72	36	36					4/72		5
	01040251B		4	72	36	36					4/72		

1														
	01040191C		4	72	0	72				4/72			4	
	01040261C		3	54	27	27				3/54				
	1	01040171B	Python	5	96	48	48				6/96		5	
	2	01040201B	Android	2	36	18	18				2/36			
	3	01040191B	Linux	2	36	18	18				2/36			
				40	732	330	402	0	0	0	18/32 4	24/408	0	
				18	336	132	204	0	0	0	8/144	12/192	0	
				18	336	132	204	0	0	0	8/144	12/192	0	
	1	01040200C	/	3	82	0	82					6/82		
01040210C			2	48	0	48					2			
01040220C			12	336	0	336						28/33 6		
			17	466	0	466	0	0	0	0	6/130	28/33 6		
			17	466	0	466	0	0	0	0	6/130	28/33 6		
			94	1848	648	1200	12/154	16/28 8	16/28 8	22/39 6	22/386	28/33 6		
			135	2600	1050	1550	23/434	24/45 4	20/44 4	27/50 2	22/430	28/33 6		
			135	2600	1050	1550	23/434	24/45 4	20/44 4	27/50 2	22/430	28/33 6		

1. " "
- 2
- 3 " "
- 4 " *"
5. " 1+X" " 1+X"

17

15

67%

1				2
				4
				56
2				6
				8
				56
3				6
				2
				4
4	Linux	Linux		4
		Linux		8
				60
5		Web		2
				60
6				6
				6

				64
--	--	--	--	----

	2		60	
		IT	40	
			20	
	3	ICT	30	
			30	
			60	

" "

	1000 5000
	1
	2

135
76

20

39

6 7

6

1	Web				
2					

7

--	--	--	--	--	--

1		B			
2					
3					

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2																				
//																				

