

610213

61	6102	64	2-02-10		
		65	2-02-13		
			4-04-04		

		/	
		A	

/

/

2.

3.

4.

5.

1~2

6.

1~2

(

1.

2.

IT

3. Linux

4.

5.

6.

7.

8. Python

9. IaaS PaaS SaaS

10. IT

(

1.

2.

3.

4.

5.

6.

7.

- 8.
- 9. OpenStack
- 10.
- 11.
- 12. IT
- 13.

1		T1-1 / T1-2 T1-3	A1-1-1 A1-1-2 Linux A1-2-1 A1-3-1	MySQL
2		T2-1 T2-2 T2-3	A2-1-1 A2-1-2  A2-2-1 OpenStack IaaS A2-3-1  A2-3-2	
3		T3-1 T3-2 T3-3	A3-1-1 A3-1-2 KVM	

A3-1-3

A3-2-1

A3-2-2      Docker

A3-3-1

T4-1

A4-1-1

T4-2

A4-1-2

A4-2-1

BCS  
BCS

1

	1  2  3	1  2  3  4 5  6	1  2  3  50%
	1   2   3  "  "	1  2 3 4 5  6  7	1   2  " " " " "  3  +  70%+      30%
	1 : ,  ,  2 : " " 3 :  :	1  2  3 " "  4  5	1 ,  2  , " " " "  3  +  70%+      30%
	1  " " "	1 " "  2	1  2

	" 2  3	" "	3 80% 20%+
	1  2  3	1 2 3	1  2  3 30% 40% 30%
	1 " "  2  1-2  3	1 2 3  4  5 6	1 " " 2  ,  ,  (3)

	1-2		
	1  2  3	1 2 3 4	1  2  3 40% 60%
	1  2  3	1  2  3 4 5 6 7 8	(1) " "  (2)   (3) 40% 60% +
	1  2  3  Matlab	(1) (2) (3) (4) (5) (6)	(1) " " (2) " "  (3)  " " 60% 40%
	1	1 3400	1
	" "	2	

" "

2 3 2

2 4 "

3 5 3 60%

6 40%

1

2 :

6

	3		3 40% 60% 50%
	1  2  3	1 - 2 3 4 5 6 7 8 9 10 11	1     +  2 40% 40% 20%
	1  2  3	1 2 3	1 " "  2  3 +

2

	1	(1) (2) (3)	(1) IP TCP/IP OSPF BGP SDN/NFV/VXLAN VRRP

	2   3	(4) (5)	802.1Q.00S  (2) " — "  (3)  (4) 60% 40%
Python	1  2 Python  3	(1)  (2) (3) (4) (5) (6)	(1) Python MySQL Linux  (2) " — "  (3)  (4) 60% 40%
Linux	1  2 Linux Linux  3 Linux	(1) Linux (2) Linux (3)  (4)  (5) (6) (7)	(1) Linux  (2) " — "  (3)  (4) 60% 40%
MySQL	1  2 MySQL MySQL SQL	(1) MySQL (2)  (3) (4)  (5) (6)	(1) MySQL  (2) " — "  (3)  (4) 60% 40%

	3	SQL  DML		
Web	1  2  3	web	(1) (2) (3) (4)	(1) Web  (2) " " (3) ,  (4) 60% 40%
Java	1  2  3	Java  Java  Bug	(1) (2) (3) (4)  5  6  7	(1) Java  (2) " " (3) ,  (4) 60% 40%

3

	1	1	(1) shell python OpenStack/Ceph/KVM
	2	3	(2) " "



	3  Linux		(3)  ,  (4) 60%                      40%
Python	1  2  Python  Python  Python Web                      Python  3	(1)  (2) Python  Python  Supervisor/Fabric Python	(1)  (2) " _ "  (3) ,  (4) 60%                      40%
	1  2  NAS                      SAN  Ceph GlusterFS Openstack 3	(1) (2) (3) NAS (4) SAN (5) Ceph  (6) GlusterFS  (7) Openstack	(1)  C Java Ruby Python Perl  (ceph,                      / / )  (2)                      " "  (3)  ,  (4) 60%                      40%
	1  2  JSP  JSP JavaBean                      Java	(1)  (2)  (3)  (4) JSP	(1)                      Spring Boot SpringMVC netty  mysql                      mongodb  , WEB  (2)                      "



Véb	(1)  (2) Véb  SQL  (3) Véb	(1) Htt p (2) Véb  (3) XSS (4) CSRF (5) SSRF (6) SQL (7) (8) Véb	(1) Véb  (2) Véb  (3)  (4) 60% 40%
	1  2 Véb  3 Windows/Li nux  Véb	(1) :  (2) Véb Véb  (3) Véb  SQL	(1) OpenStack KVM Vmware WAF IPS anti-DDOS HCl E CCl E Cl SA  (2) "  (3) Véb  (4) 60% 40%
	1  2	(1)  (2)  (3) Openstack H	(1)  (2) (3)  (4)  2000

	<p>3</p> <p>Openstack</p>	(4)	<p>2000      A4</p>
	<p>1</p> <p>2</p> <p>VLAN</p> <p>IP</p> <p>KVM</p> <p>Li nux      yum</p> <p>Li nux</p> <p>Docker</p> <p>Docker</p> <p>Swarm      K8s</p> <p>3</p> <p>Li nux</p> <p>Openstack</p>	<p>(1)</p> <p>(2)</p> <p>(3) Windows Server</p> <p>(4) Windows Server</p> <p>(5) Li nux</p> <p>(6) I/O</p> <p>(7) Openstack</p>	<p>(1) shell python</p> <p>OpenStack/Ceph/KVM</p> <p>(2) " — "</p> <p>(3)</p> <p>(4) 60%      40%</p>
	<p>1</p> <p>2</p> <p>3</p>	<p>(1)</p> <p>(2)</p> <p>(3)</p> <p>(4)</p> <p>(5)</p> <p>(6)</p>	<p>(1)</p> <p>(2) " — "</p> <p>(3)</p>

( )	<p>1</p> <p>2</p> <p>Openstack Li nux</p> <p>3</p> <p>KVM</p>	<p>(1)</p> <p>(2)</p> <p>(3)</p> <p>(4)</p> <p>(5)</p> <p>(6)</p> <p>(7)</p> <p>(8)</p> <p>PPT</p>	<p>(1)</p> <p>(2) " _ "</p> <p>(3)</p> <p>(4)</p>
	<p>1</p> <p>2</p> <p>3</p> <p>TCP/I P</p>	<p>(1)</p> <p>(2)</p> <p>(3)</p> <p>(4)</p> <p>(5)</p> <p>(6)</p>	<p>(1)</p> <p>(2) : " _ "</p> <p>(3)</p> <p>(4)</p> <p>60% 40%</p>
	<p>1</p> <p>2</p>	<p>(1)</p> <p>(2)</p> <p>(3)</p> <p>(4)</p> <p>(5)</p> <p>(6)</p>	<p>(1)</p> <p>(2) : " _ "</p> <p>(3)</p> <p>(4)</p> <p>60% 40%</p>

	3	Windows		
	Linux			

5

SDN	1		(1) SDN (2) OVS (3) Python (4) SDN	(1) SDN
	2	SDN OVS SDN OpenFlow	(5) SDN (6) SDN (7) SDN	(2) " - "
		Python RG-CNP SDN REST API		(3)
	3			(4)
	VM			60% 40%
Windows	1		(1) (2) (3)	(1) Windows
	2	Windows WEB FTP DHCP DNS		(2) "
		Windows Windows		(3)
	3	Windows		(4)
				60% 40%
	1		(1) (2) (3)	(1)
	2			(2) "
				(3)

	3		(4)	60%	40%
--	---	--	-----	-----	-----

6

1	1	1	
		2	
		3	
2		4	
		5	2
3			+

1	1	1	
		2	
2		3	
		4	2
3			
			70%
			30%

1	1	1	
		2	
2		3	
		4	
3		5	
		6	
			2
			+

"	2	
	3	
" 1 "	4	
	5	
2	6	
	7	2
3		
1	1	1
	2	
	3 WEB1.0	
2		2
	4 WEB2.0	
	5 WEB3.0	
3		
	6	
	7	

//

//

9	001009		B		3	60	36	24	2*15	2*15			
10	001010		B		7	120	96	24	4*15	4*15			
11	001011		B		3	48	10	38	4*12				
12	001012		B		2	40	20	20	2*1	2*8	2*8	2*1	4*1
13	001013		B		1	30	14	16		2*15			
14	001014		C		1	20	6	14	4*1	4*1	4*1	4*1	4*1
15	001015		B		1	16	8	8	4*1	4*1	4*1	4*1	

49 866 378 488 21/410 15/294 5/90 3/56 1/16

1	052001	*	B		3	60	52	8	6*10				
2	052002	Li nux *	B		3	48	16	32	6*8				
3	052003	Wèb	B		3	48	16	32	6*8				
4	052005	Python *	B		3	60	20	40		6*10			
5	052004	MySQL *	B		3	48	16	32		6*8			
6	052006	Java	B		3	60	20	40		6*10			

18 324 140 184 8/156 8/168

1	052083	Python	B		3	60	20	40			6*10		
2	052084		B		9	156	52	104			6*10	6*16	
3	052085		B		6	96	32	64			6*16		
4	052086		B		3	60	20	40				6*10	
5	052087		C		3	60	20	40				6*10	
6	052088		B		6	96	32	64				6*16	
7	052090		B		3	60	20	40				6*10	

33 588 196 392 11/216 19/372

1	052091		B		3	60	20	40			6*10		
2	052059	Wèb	B		3	60	20	40			6*10		
3	052096		B		3	60	20	40				6*10	
4	052018	*	C		1	20	20		2*10				
5	052097		C		1	20		20		20*1			

6	052093		C		5	80	0	80					10*8	
7	052094		C		2	40		40					4*10	
8	052099		C		2	40	0	40					20*1	20
9	052100		C		6	100		100					20*5	
10	052101		C		30	480		480					20*4	20*20
					56	960	80	880	1/20	1/20	6/120	3/60	16/320	21/420
					107	1872	416	1456	9/176	9/188	17/336	22/432	16/320	21/420
1	003001		A		3	50	50	0		50				
2	003002		B		1	20	10	10		20				
3	003003		A		6	108	108	0	36	36	36			
4	003004		C		1	30	0	30			30			
5	003005		B		1	20	10	10			20			
					12	228	178	50	2/36	5/106	4/86			
1	052095	SDN	B		3	48	16	32				6*8		
2	052026	Windows	B		3	60	20	40		6*10				
3	052027		B		3	48	16	32				6*8		
					6	108	36	72		3/60	2/48	2/48		
					18	336	214	122	2/36	8/166	7/134	2/48		
					174	3074	1008	2066	31/622	32/648	28/560	27/536	24/336	21/420

686—866

1786—1996

228

2700—3090 16-18

1

60

30

30

40

20

26



1		15	49	378	488	866	56.4	28.2
2		6	18	140	184	324	56.8	10.5
3		7	33	196	392	588	66.7	19.1
4		10	56	80	880	960	91.7	31.2
5		5	12	178	50	228	21.9	10.9
6		2	6	36	72	108	66.7	
		45	174	1008	2066	3074	67.2	100

	/						
1	ACA ACP		4		4		1-2
2			4		4		
3	RHCVA		4		4		
4	( ) ( )		3	Python	2		
			4	Python	3	Python	

1.

1: 16

60%

2.

5

6

3.

	6	8			
		3	8	3	

1.

WiFi

2.

1			100m <sup>2</sup> 100	100
2			180m <sup>2</sup> AP 150	150
3		Windows Server Linux Web	120m <sup>2</sup> 100	100
4			120m <sup>2</sup> 100	100

5		OpenStack Vue	60m <sup>2</sup> 50	50
6		SDN Python PHP SDN	60m <sup>2</sup> SDN SDN SDN 50	50
7				400

3.

OpenStack

1	360	SparkSQL	50 <sup>2</sup> 16	80
2		A	50 <sup>2</sup> 16	50
3			50 <sup>2</sup> 16	30
4			50 <sup>2</sup> 16	30

4.

1.

2

3.

( )

1

2

3

4

1.

174

2.

7

•

• ACA

• ACP

• RHCVA

•

•

•

< >

< >

< >

3.

A

4.

2020 5 2