

- 1- Martin Fowler's content
- 2- SSH port 22
- 3- startup process of init
- 4- IP addressing (from the midterm)

Ex: 192.168.100.64/26

26 bits belong to the network, the 6 bits on the right belong to the hosts.

$2^6 = 64$  available space 64 to 127

127 is the broadcast address: the last one

126 is the last unicast address

- 5- git command
- 6- OS structure, type of OS
- 7- Hyper-converge vs Integrated system
- 8- Types of Linux? Types of BSD ?
- 9- OS services
- 10- Active Directory, roles (5 of them)?

11- SAML?

12- choreography vs orchestration

13- types of file systems

14- superblock vs dentry and inode ???

15- VM: baremetal, container, docker,...

16- IP addressing

17- Hierarchy of internet layer

18- core features

19- bridging vs routing

20- unicast, broadcast ?

21- VLAN

22- 802.1q

23- SVI putting IP address on VLAN

24- forwarding characteristics (spanning tree)

25- port channel/ aggregation

26- OSI, TCP layer

27- TCP vs UDP

28- BGP, iBGP, eBGP

29- Link state, distance vector

30- Classes vs classful routing

- 31- RFC 1918/ data center
- 32- subnetting
- 33- quality of service on the Internet
- 34- Jitter ? What is it?
- 35- leaf spine/clos architecture
  
- 36- VPN
- 37- Unified communications--what belongs to this or vice versa
- 38- Internet standards ?
- 39- SNMP high level ?
  
- 40- REST
- 41- RAML
- 42- Integration Pattern
- 43- AJAX, XML
- 44- OSgi architecture
- 45- Wiring processor
  
- 46- Message transformation, graphs
- 47- Groupware-Enterprise architecture
- 48- ERP (high level)
- 49- SCM characteristics
- 50- Directory vs database
- 51- Authentication vs Access control, RBAC
  
- 52- PKI
- 53- identity management
- 54- Salesforce
- 55- UML diagrams (markers, symbols, task vs sub-processes)
  
- 56- SW development lifecycles (stages, sequences and characteristics)
- 57- kanban, Jenkins
- 58- Agile manifesto
- 59- concurrency
  
- 60-Optimistic vs pessimistic control
- 61- deadlock
- 62- database characteristics
- 63- Database rules**
- 64- schema and, object, primary key, SQL, select data, inner join, cross join

65- ACID and CAP theorem

**66- Size and complexity of database--> which situations to use in the case?**

67- Polyglot persistence ???

68- Fowler' video on noSQL

69- ESB vs SOA

## Lecture 10

70- Basic messaging concepts

71- Apache Service Mix, Karaf ? What they do?

72- Microservices-characteristics

73- Synchronous vs Asynchronous

74- Netflix-->microservices example?

75- In class lab

76- Business Intelligence

77- Data processing chain--industry standard

78- data mining

79- normalization

80- OWASP

81- Security-layers

82- PKI

83- Attacks

84- Attack surface

85- CVE, OWASP

86- Component attack: X-site scripting attack

87- Best practices

88- Authorization

89- ACL

90- Failing open and failing closed ?

91- different types of authorizations: rule based, ...

## Lecture 12

92- Security mis-config

93- Different attack patterns

94- SQL injection

95- ISO 9001 and 14001

(High-level)

96- certification  
97- framework for certification  
98- service lifecycles  
99- TOGAF  
100- c