



24. DSN & CDN

- **DNS: Binding IP and Domain Name(P3)**
- **IP Address as a Type of Name(P4)**
- **Why Not Just Using IP Address?(P5)**
- **IP 和hostname之间可以是一对多、多对一的关系 (P6)**
- **value corresponding to a name can change(P7)**
- **Look-up Algorithm(P8)**
- **Distributing Responsibility(P9)**
 - **Name Servers(P10)**
 - **DNS Hierarchy (a partial view)(P11)**
- **Basic DNS Look-up Algorithm(P12)**
 - **example(P13-17)**
- **Context in DNS(P18)**
- **Fault Tolerant(P19)**
- **Three Enhancements on Look-up Algorithm(P20-24)**
 1. **The initial DNS request can go to any name server, not just the root server(P20)**
 2. **Recursion(P21-22)**
 3. **Caching(P23)**
 4. **Combine These Enhancements(P24)**
- **Other Features of DNS(P25)**
 1. **replica servers(P25)**
 2. **对内对外 (P26)**
- **Name Discovery in DNS (at the first place) (P27)**

- Comparing Host-name & File-name (P28)

Behind the DNS Design : Why was DNS designed in this way?

- Benefits of Hierarchical Design (P30)
- Good Points on DNS Design (P31-32)
 1. Global names (assuming same root servers)
 2. Scalable in performance
 3. Scalable in management
 4. Fault tolerant
- Bad Points on DNS Design (P33)
 1. Policy
 2. Significant load on root servers
 3. Security
 - example: DNS Amplification Attack(P34)
- DNS Security(P35)

Naming Scheme: Naming—the glue of modules

- Naming for Modularity(P40)
- Addresses as Names(P41)
- A naming schemes contains three parts(P42)
- Naming Model(P43)
- Naming Terminology(P44)
- Naming Context(P45)
- Determining Context(P46-47)
 1. Hard code it in the resolver
 2. Embedded in name itself
 3. Taken from environment (Dynamic)
- Name Mapping Algorithms(P48-49)
 1. Table lookup

2. Recursive lookup

3. Multiple lookup

- **Interpreter Naming API(P50)**
- **FAQ of Naming Scheme(P51-52)**

CONTENT DISTRIBUTION

- **Content Distribution overview(P55)**
- **Caching Examples(P56)**
- **Content Distribution Network (CDN)(P57)**
- **Server Selection Mechanism(P59-61)**
- **How Akamai Uses DNS(P62-69)**