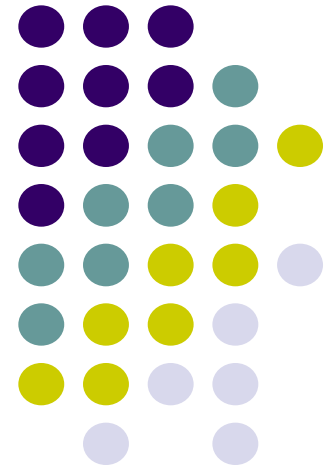
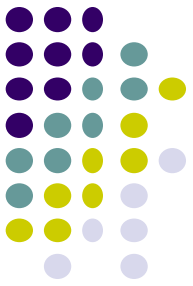


Domain Name System (DNS)

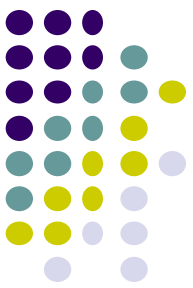




Naming With the Domain Name System

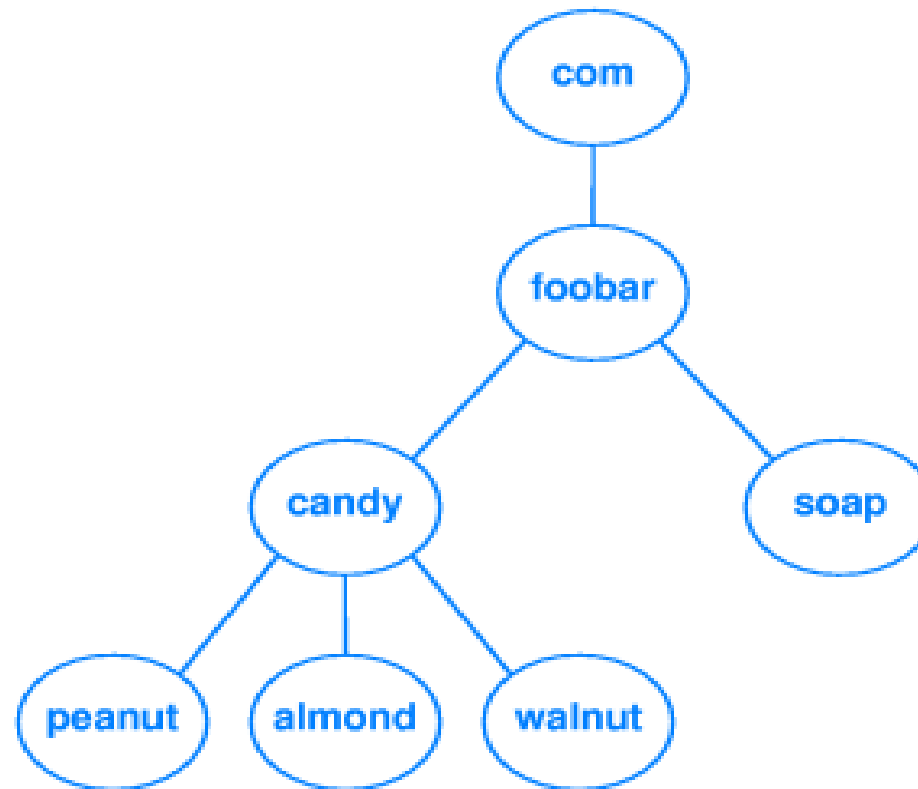
- Symbolic names to define specific computers are required for human understanding
- But symbolic names are not convenient for computers
- DNS is a name resolution service that resolves computer names to IP addresses
- DNS organizes groups of computers into *domains*.
- These domains are organized into a hierarchical structure, which can be defined on an Internet-wide basis for public networks or on an enterprise-wide basis for private networks

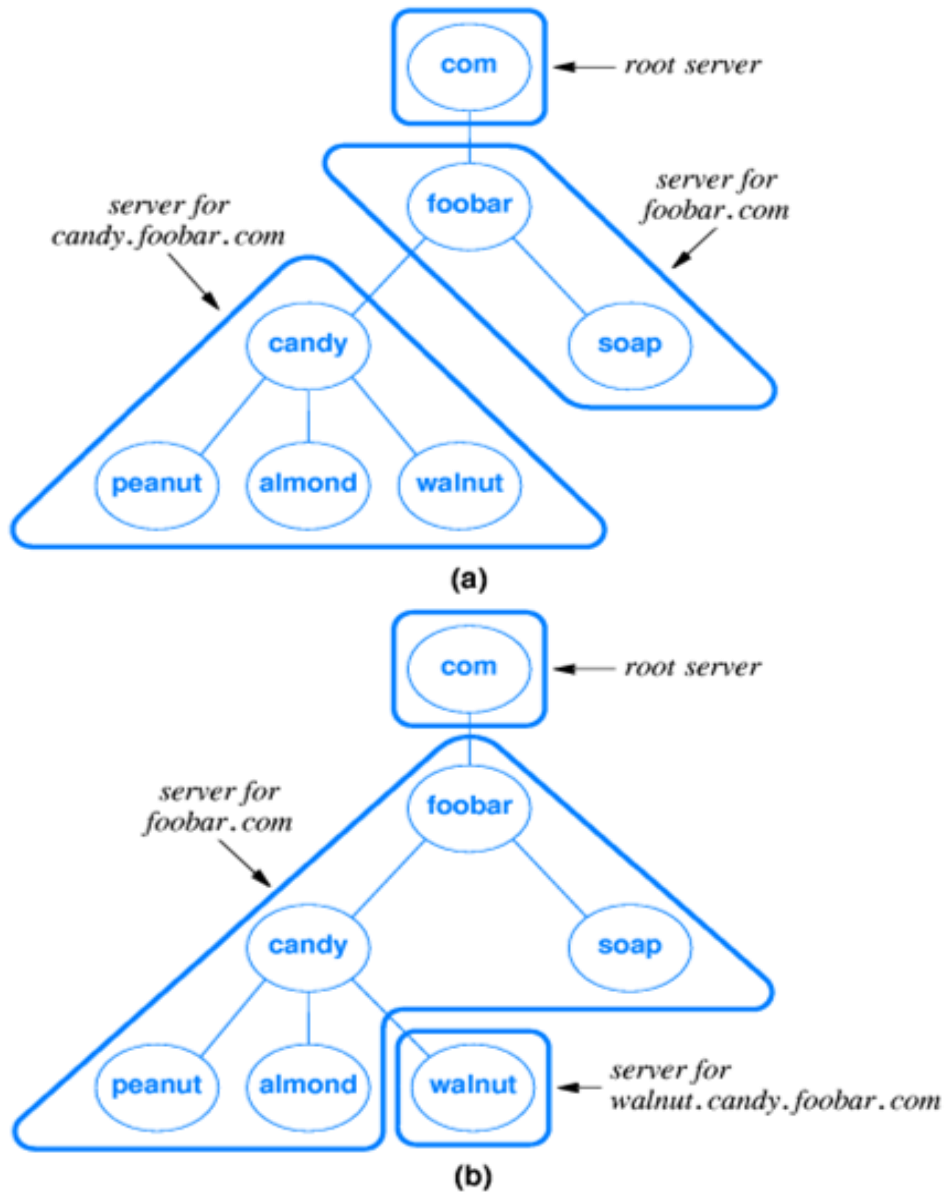
Structure of Computer Names



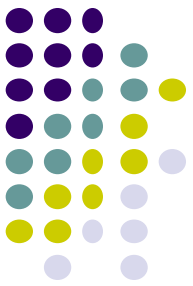
<i>Domain Name</i>	<i>Assigned To</i>
<i>com</i>	<i>Commercial organization</i>
<i>edu</i>	<i>Educational institution</i>
<i>gov</i>	<i>Government organization</i>
<i>mil</i>	<i>Military group</i>
<i>net</i>	<i>Major network support center</i>
<i>org</i>	<i>Organization other than those above</i>
<i>arpa</i>	<i>Temporary ARPA domain (still used)</i>
<i>int</i>	<i>International organization</i>
<i>country code</i>	<i>A country</i>

Domain Names within an Organization



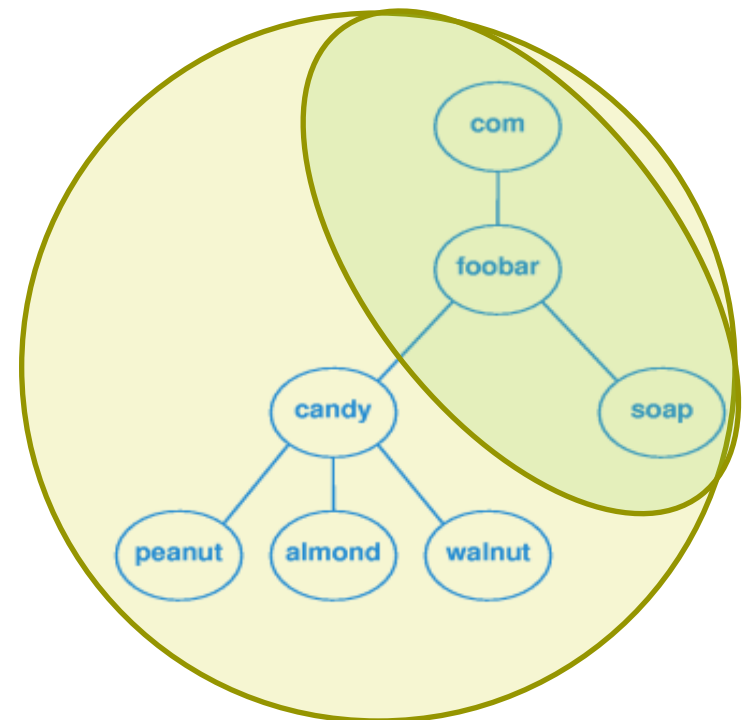
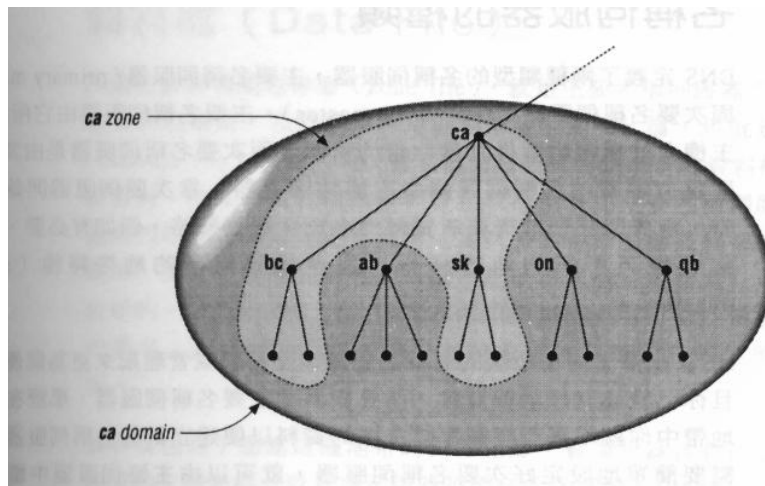


- Top-level domains are at the root of the DNS hierarchy and are called *root domains*. These domains are organized geographically, by organization type and by function.
- Normal domains, such as foobar.com, are also referred to as *parent domains*, because they're the parents of an organizational structure.
- Parent domains can be divided into subdomains, which can be used for groups or departments within an organization. Subdomains are often referred to as *child domains*, such as candy.foobar.com, walnut.candy.foobar.com...



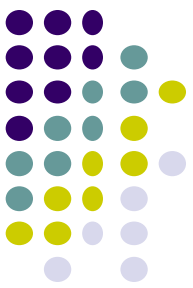
- Name Server

- Zone : A **DNS zone** is any distinct, contiguous portion of the domain name space in the Domain Name System (DNS) for which administrative responsibility has been delegated to a single manager.
- Primary/Secondary, Master/Slave

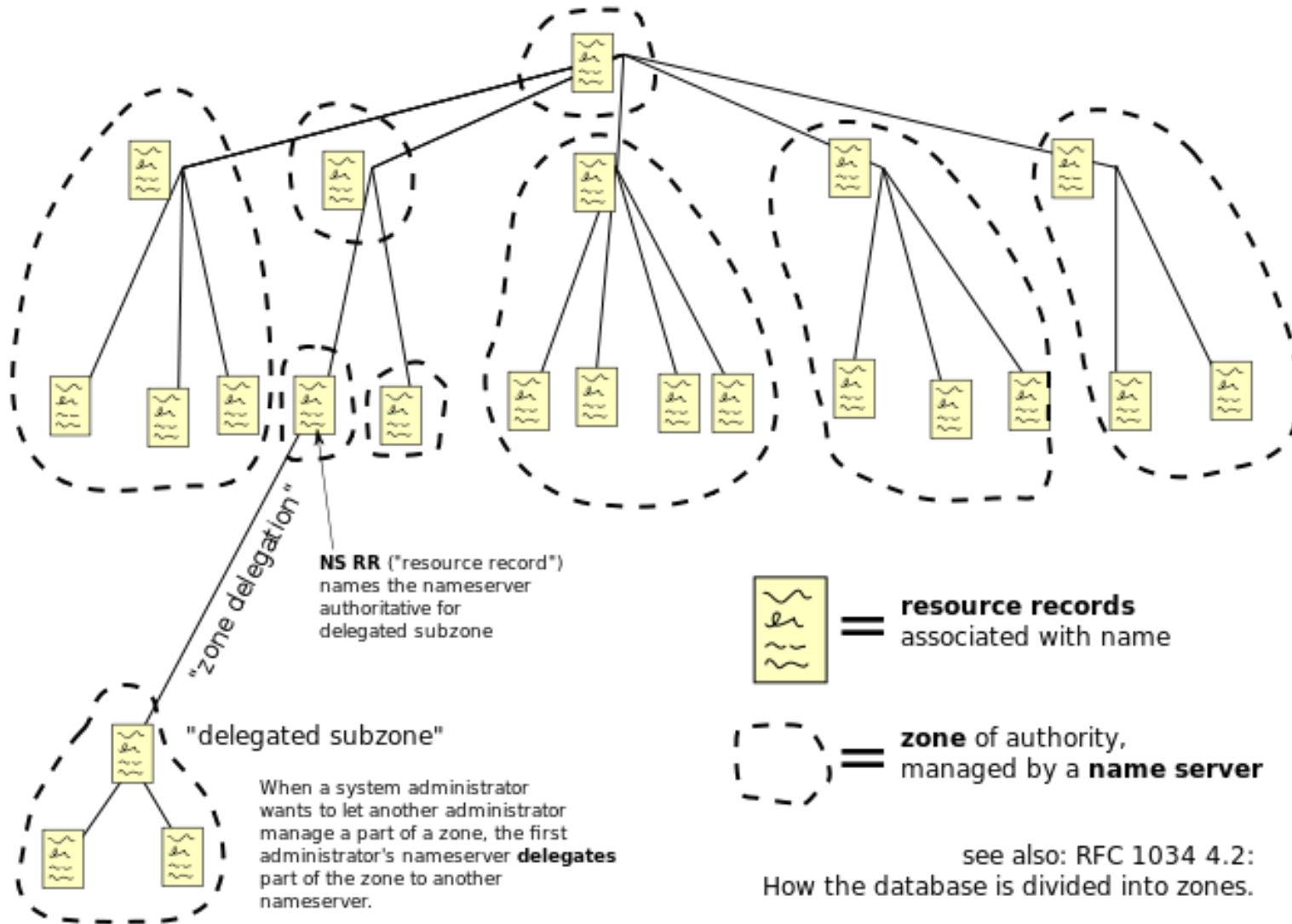


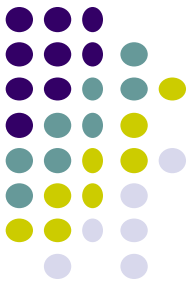
Longest Domain Name?

- 3.141592653589793238462643383279502884197169399375105820974944592.com



Domain Name Space





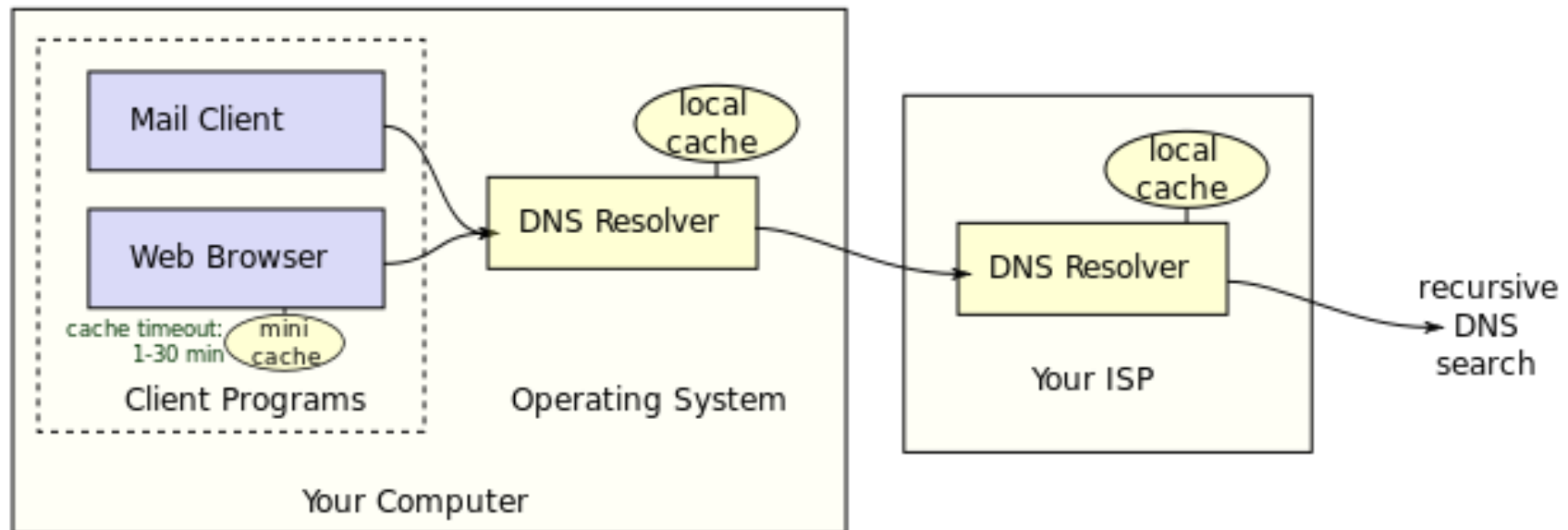
Optimization of DNS Performance

- Replication: DNS replication is the process of copying records from one DNS server to another.
- Caching: The DNS Resolution Process reduces the load on individual servers by *caching* DNS request records for a period of time after a response. This entails the local recording and subsequent consultation of the copy instead of initiating a new request upstream.



DNS Resolution Sequence

The client-side of the DNS is called a **DNS resolver**. It is responsible for initiating and sequencing the queries that ultimately lead to a full resolution (translation) of the resource sought, e.g., translation of a domain name into an IP address.

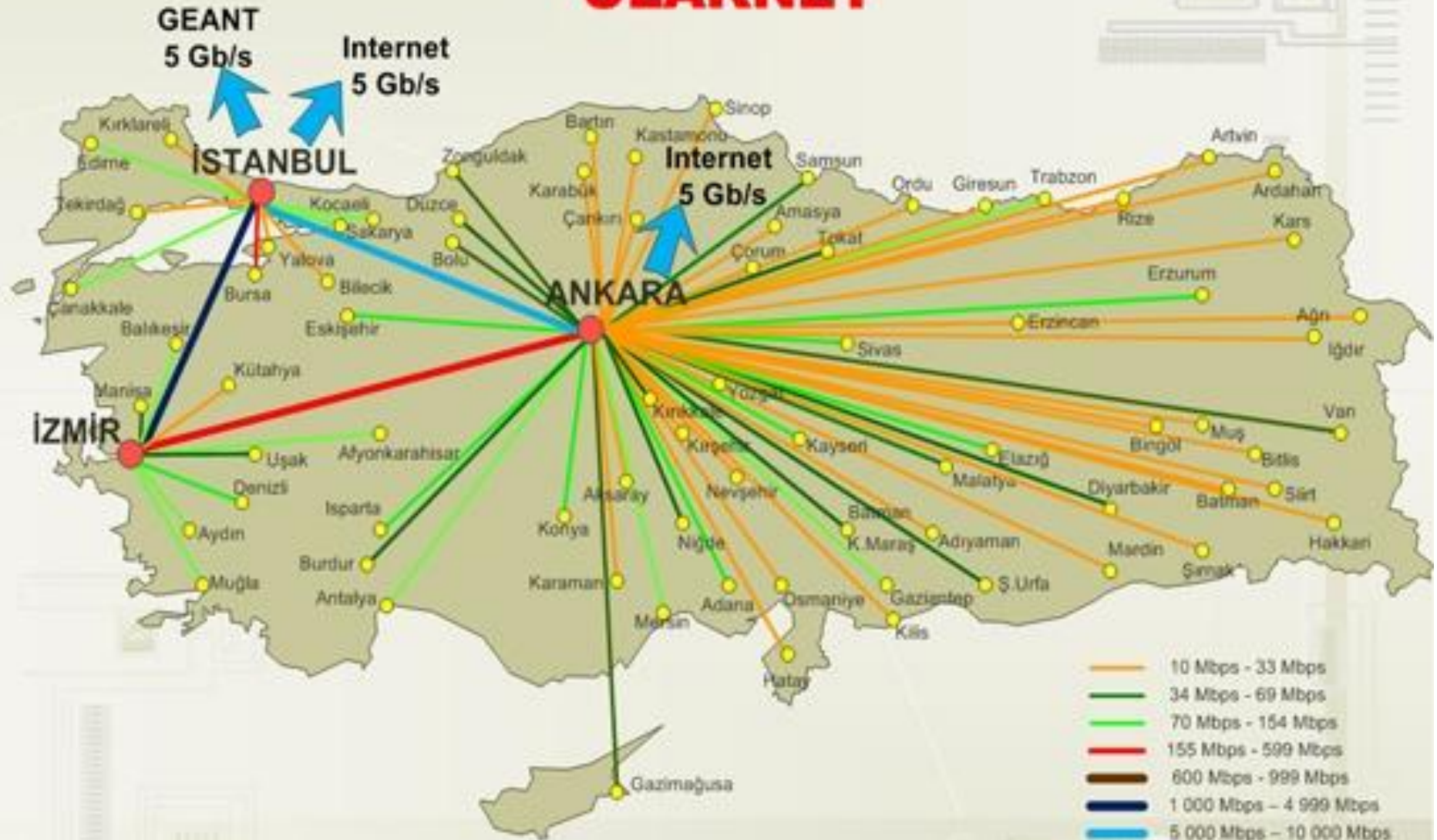


ULAKNET

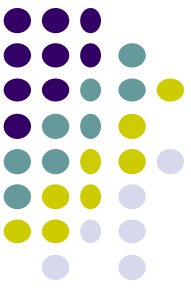


- TUVAKA (Türkiye Universiteler ve Akademik Kuruluşlar Ağı)
- ULAKNET, Türkiye'deki üniversiteler ve diğer akademik kuruluşları içine alan ve bunlara internet erişimi sağlayan bir iletişim ağı kurmaktadır. Ulaknet'in yurtdışı internet çıkışları, Ankara ve İstanbul'dandır.
- ULAKNET bugün halen 124 üniversite ve bunların fakülte, meslek yüksek okulları ve diğer altbirimleri, TÜBİTAK birimleri, Askeri Okullar ve Harp Akademisi, Polis Akademileri, Süleymaniye Kütüphanesi, Türk Tarih Kurumu, Milli Kütüphane, YÖK, OSYM, Türkiye Atom Enerjisi Kurumu ve Türk Silahlı Kuvvetleri Ar-Ge birimlerinden oluşan pek çok kuruluşa toplam 827 kiralık hat, frame relay, ATM devresi, Metro Ethernet ve G.SHDSL üzerinden ücretsiz olarak hizmet sağlanmaktadır.
- Bu birimlere sağlanan toplam band genişliği 13.170 Gbps kapasitesine ulaşmıştır. Avrupa Akademik Ağı GEANT'a olan bağlantı 5 Gbps kapasiteli fiber bağlantı şekline dönüştürülmüştür. Küresel internet bağlantısı ise 12,5 Gbps hızına yükseltilmiştir (2010). 2011 yılında bağlantı hızı 10 Gbps'a, küresel bağlantı ise 20 Gbps'a yükselmiştir.

ULAKNET







Domain Tescili

İsim Tescilleri iki ayrı kategoride yapılmaktadır.

- **Uluslararası Domain Tescili** : com, net, org, info, biz vs. isim tescillerinde Amerikadaki Domain Banklar (InterNIC,...) yetkilidir.
- **Yerli Domain Tescili**: (com.tr - net.tr - org.tr) Türkiyedeki (tr) uzantılı Tescil işleminde ODTÜ (Orta Doğu Teknik Üniversitesi) yetkilidir.
- **Ulusal İsim Tescili**
 - **www.isim.com.tr** (Firmalar içindir, ticaret sicil belgesi istenmektedir)
 - **www.isim.net.tr** (İnternet ve network firmaları içindir, ticaret sicil belgesi gereklidir)
 - **www.isim.gen.tr** (Genel kullanım içindir, belge istenmemektedir)
 - **www.isim.nom.tr** (Kişisel kullanım içindir, belge istenmemektedir)
 - **www.isim.org.tr** (Vakıf, dernek, partiler içindir, belge istenmektedir)
 - **www.isim.gov.tr** (Devlet kuruluşları içindir, belge istenmektedir)
 - **www.isim.edu.tr** (Üniversiteler içindir, belge istenmektedir)
 - **www.isim.k12.tr** (Okullar içindir, belge istenmektedir)