



PRESENTS

NETWORLD INTEROP

an INTEROP event

Advanced Content Networking The New WAN link

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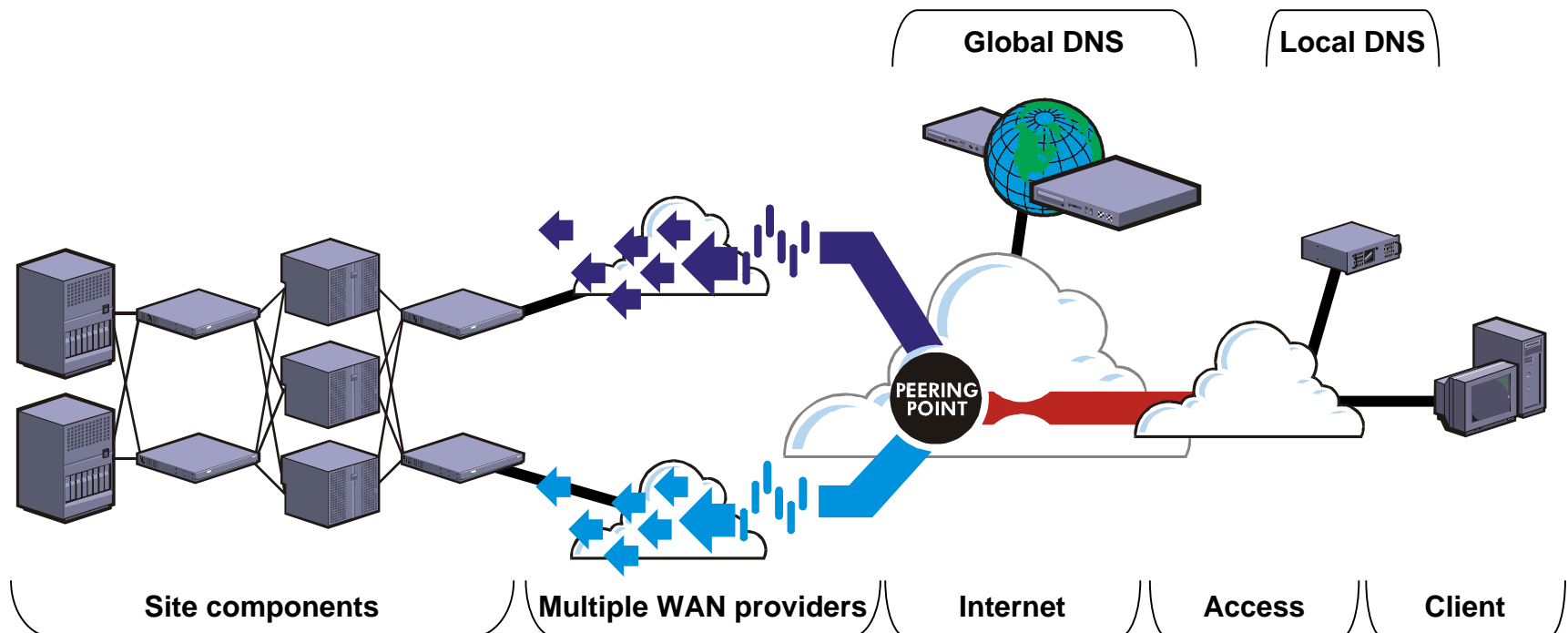
3:30 – 4:45 PM, September 12, 2001

CDN: the new WAN link

- A “pipe” of traffic is now a series of hierarchical steps
 - deep processing at the core
 - increasingly subscriber-oriented, increasingly static content towards the edge
- Need for performance, scalability, efficiencies of multi-tiered server model are all driving this

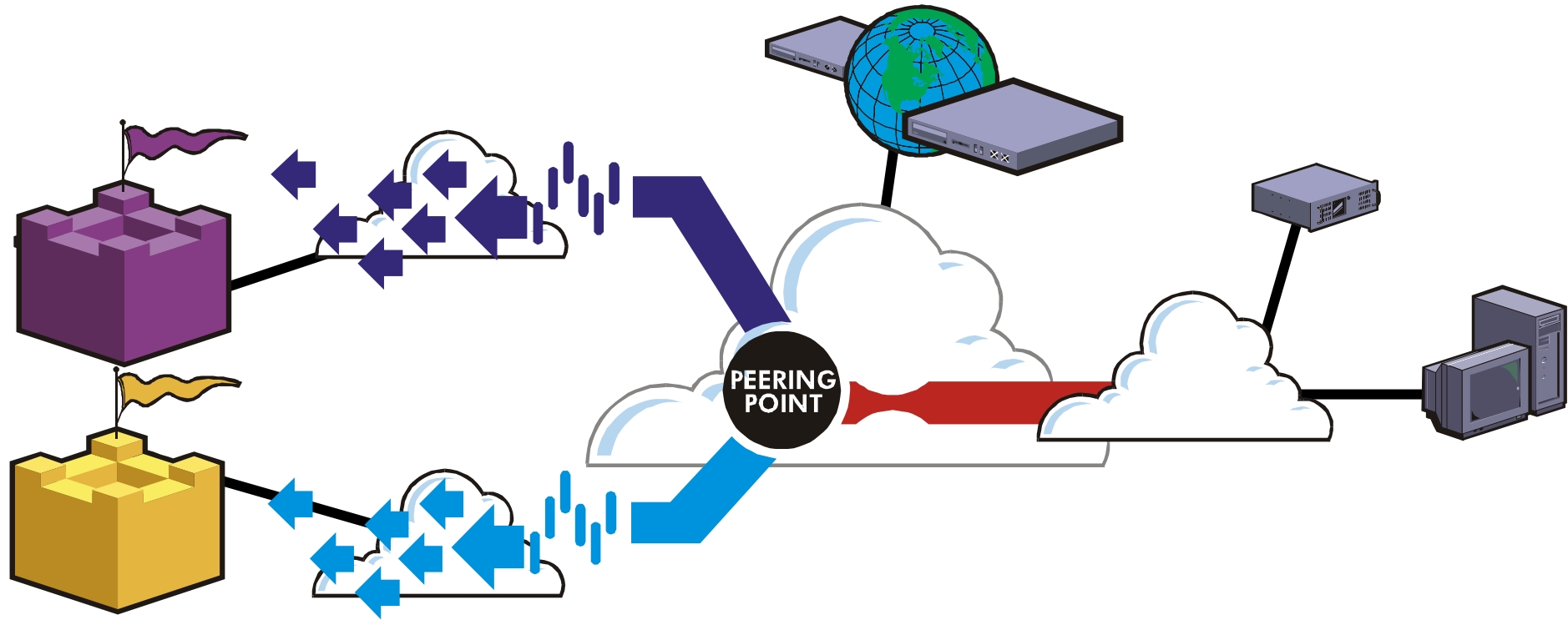
High-level overview: A look at site architecture

- To understand CDNs, we need to understand how sites get content
- There are many components in an online system

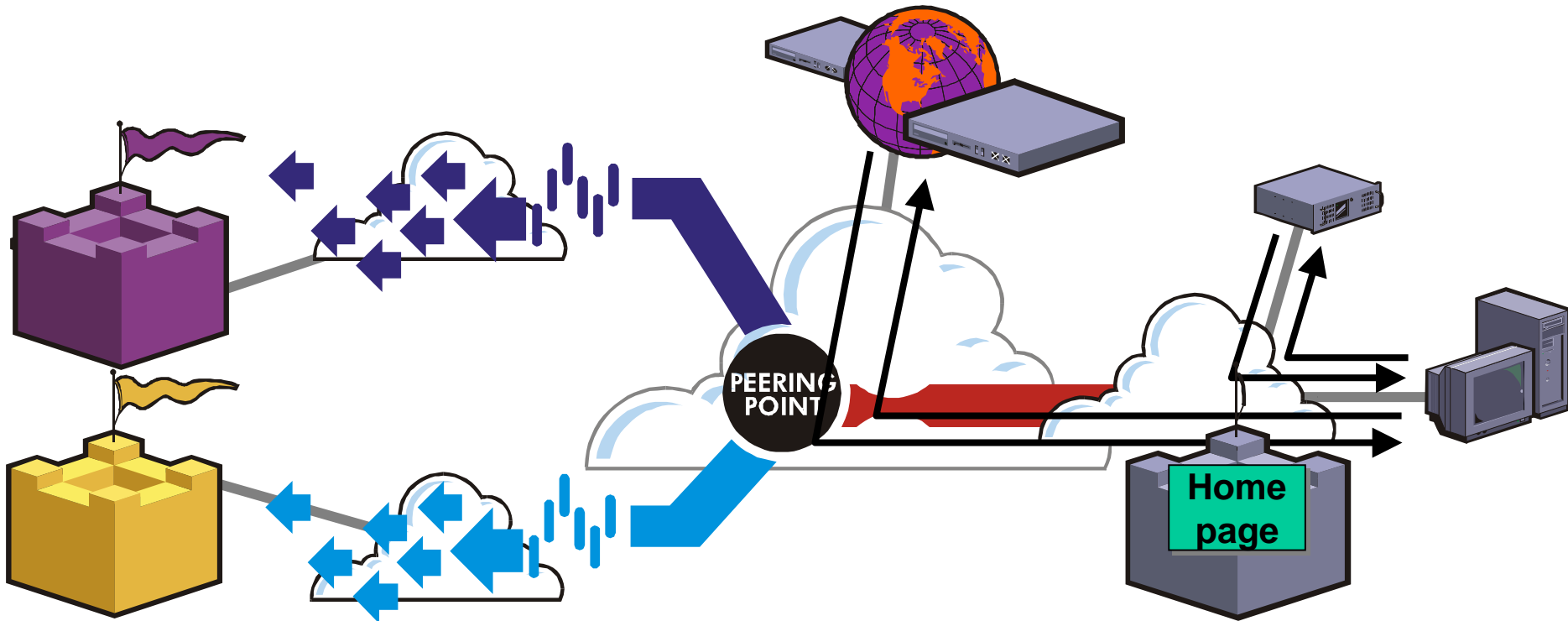


A look at site architecture

- Let's simplify things a bit...



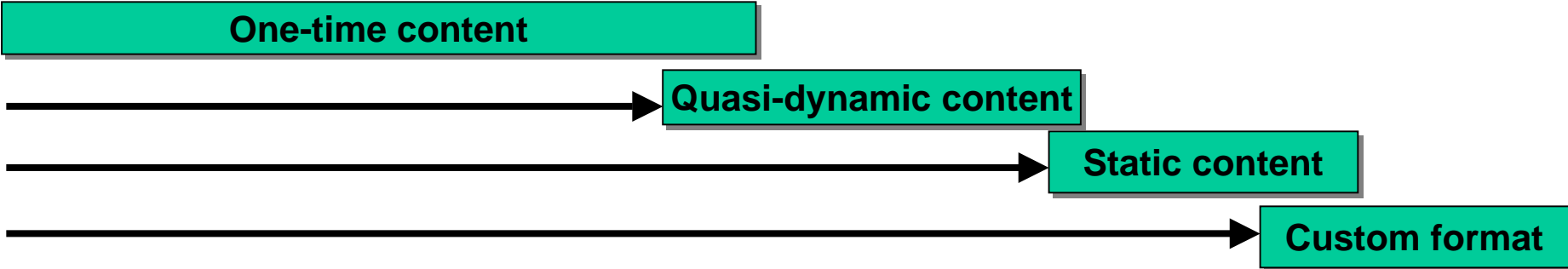
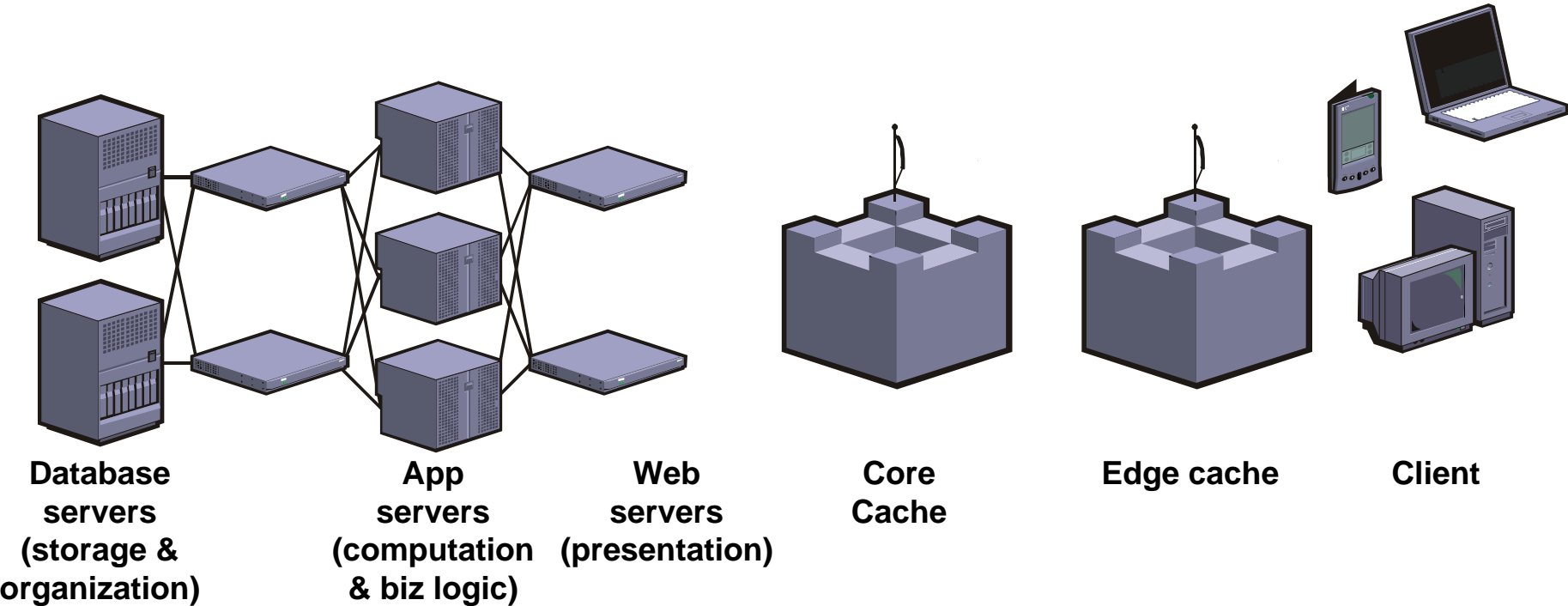
The reality is more complex



- CDN owns the DNS for the client
 - Even the “first hit” to the site is handled by a cache point

Different levels of distribution

- Architecture starts by deciding what to distribute



Emerging technologies

- New clients
- Edge-side includes
- Hardware-based

Emerging technologies: New clients

- PDA and wireless devices have different formats
- Edge presentation can simplify the core



Next step is dynamic processing at the edge

- Topical subsections of site with some “thinking”
- Permissions, security, freshness are what matter
- Main benefits are distributed processing, reduced application server footprint

Emerging technologies: ESI

- Allows the inclusion of multiple “fragments” into a page
- Assembled at the edge
- Can handle variables
 - Either to perform calculations or for insertion in HTML output
- Can do computation and handle errors
- This is relevant because **it changes where things get processed**
 - For more info, www.esi.org

Geekfest: ESI Inclusion



- Edge composes pages by assembling included content
- each “fragment” has own cacheability & handling attributes

```
<esi:include src="http://example.com/1.html"  
  alt="http://bak.example.com/2.html"  
  onerror="continue"/>
```

Geekfest: ESI Variable support



- Uses variables based on HTTP request attributes
- Can be interpreted or written into processed page

```
<esi:vars>
  
</esi:vars>
```

Geekfest: ESI Conditional processing



- Conditional logic influences how a template is processed

```
<esi:choose>
  <esi:when
    test="$(HTTP_COOKIE{group})=='Advanced'">
    <esi:include
      src="http://www.example.com/advanced.html"
    />
  </esi:when>
  <esi:when
    test="$(HTTP_COOKIE{group})=='Basic
User'">
    <esi:include
      src="http://www.example.com/basic.html"/>
  </esi:when>
  <esi:otherwise>
    <esi:include
      src="http://www.example.com/new_user.html"
    />
  </esi:otherwise>
</esi:choose>
```

Geekfest: ESI Exception/error handling



- specification of alternate and default resources

```
<esi:try>
  <esi:attempt>
    <esi:comment text="Include an ad"/>
    <esi:include
src="http://www.example.com/ad1.html"/>
  </esi:attempt>
  <esi:except>
    <esi:comment text="Just write some
HTML instead"/>
    <a
href=www.akamai.com>www.example.com</a>
  </esi:except>
</esi:try>
```