XVII_Client side

Accesso ad un server senza proxy
Classic connection client-server

Input parameters:
LANbandwidth
MaxPDU
FrameOvhd
Router latency
LinkBandwidth
InternetDelayRTT
InternetDataRate
BrowserRate
#Clients
PercentActive
AvgSizeHTTPRequest
DocumentRequested:
- R: number of cat.
- DocumentSize r
PercentSize r
DocumentSize : sum of docrsizes

Calcolo delle Service Demand
- Service demand at queue 2: LAN
- Service demand at queue 3: Router
- Service demand at queue 4: Outgoing link
- Service demand at queue 5: ISP, Internet, WebSites
- Service demand at queue 6: Incoming link

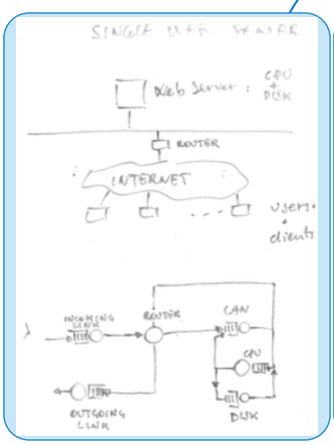
Accesso con proxy cache
Add of a proxy

Parameters:
Phit: fraction of reqs can served front the proxy
HitCPUtime: CPU time needed to process req hit
MissCPUtime: "", steps:
- process req
- ask req to WS
- Store doc
- Replace doc
- Send doc to client
Disk-time: disk time at the cache proxy server

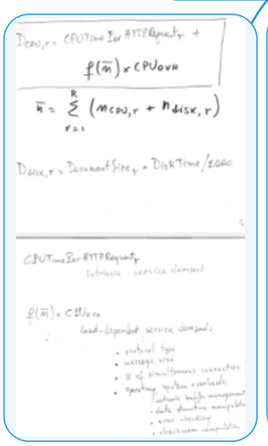
$D^{p}_{xx} = (1\text{-Phit})\ D_{xx}$

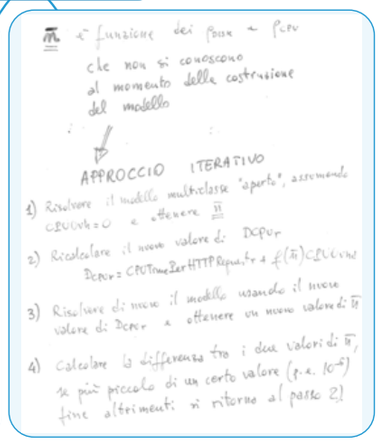
XVIII_Server side

Single Web Server

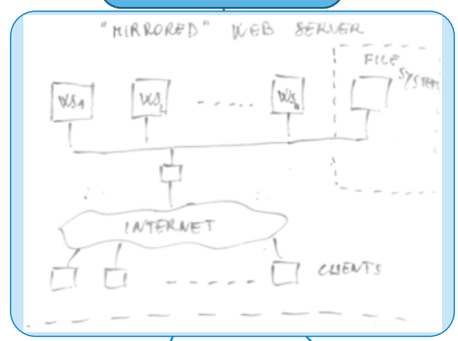


calculate service demands

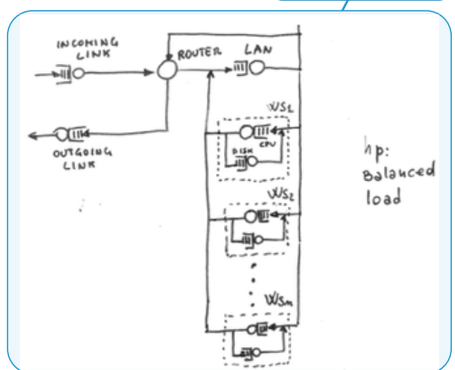




Mirrored Web Servers



Without file system

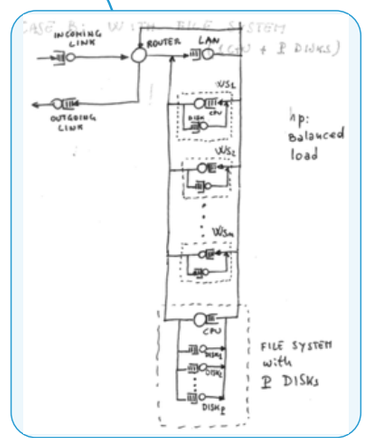


CASE A: WITHOUT FILE SYSTEM

$$D^{m}_{CPU,r} = \frac{D_{CPU,r}}{n}$$

$$D^{m}_{DISK,r} = \frac{D_{disk,r}}{n}$$

With file system



CASE B: WITH FILE SYSTEM (1 CPU + P disks)

$D^{m}_{LAN,r}$ = Network Time (AvgSize HTTP Request, LANBandwidth)
+
2 · Network Time (1024, DocumentSize$_r$, LANBandwidth)
+
5 · Network Time (0,000001, LANBandwidth)

$D_{FSCPU,r}$ = DocumentSize$_r$ × CPU Time Per FS$_{R_r}$ (time × KB accessed)

$D_{FSDisk,r}$ = (DocumentSize$_r$ × DiskTime/1000) / P