GSE 535  Oct 18, 2010

Agenda

1. Mobile Caching
   - reduce accuss latency while adapting to disconnections & reducing energy consumption
   - cover three schemes
     1. CoDA
     2. Broadcasting Invalidation Reports
     3. AS - Asyn. Stateful

Book Sec 3.4
Kahol et al. TPDS 12(7) 2001
2. To cache or not to cache
   - dynamic allocation
   - windowed scheme
     - $K_i$: window of relevant requests
     - $(K+1)$-competitive

3. Bounded slowdown for Web pg. download
   - energy-delay tradeoff
   - $p$: slow down factor
   - does sleep scheduling
     ensuring $(1+p) \cdot R$ delay.
4. Energy-Delay Trade-off in Smart Phones
   - Uses Lyapunov opt.
   - Adapt to link QoS & multiple interfaces.

5. Wireless Multicast
   - Energy-Efficient
   - Lifetime maximization
   - Bottleneck node
   - Load balancing
   - Balanced Energy Cons.
Using Power Control in single hop case:

- Single hop case
- Default (Max) Transmission level
- Lower transmission level is suff.
Multihop case

Pruning the Spanning Tree
\[ \frac{a}{b \cdot c} \]

\[ d_1 \quad d_2 \]

\[ a \rightarrow c \]

more EE?

\[ a \rightarrow c \text{ directly: } (d_1 + d_2)^2 \]

\[ a \rightarrow b, \quad b \rightarrow c \]

\[ \text{multihop: } \quad d_1^2 + d_2^2 \]

\[ \frac{(d_1 + d_2)^2}{\frac{d_1^2 + d_2^2 + 2d_1 d_2}{2}} \]

\[ \text{M.H: multihop.} \quad \text{S.H: Single Hop.} \]

M.H may be more EE than S.H