

# Apdex Implementation at AOL

## Session 45A

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## Our Environment



- **Operations organization**
- **Measuring Web site performance from customer-centric view**
  - Full page load measured from outside datacenter
  - Multiple geographic locations
- **Goals**
  - **Short-term:** Identify product issues/outages
  - **Long-term:** Achieve uniform geographic performance, in parity with competitors

## Current Metrics & Shortcomings



- **Response Time & Availability**
  - Often don't tell whole user-experience story
  
- **Reported as averages**
  - Hides variance, and is skewed by outliers
  
- **Reported in absolute numbers**
  - No context of a target (goal) value

Slide 3

## Goals of Apdex use



- **Inclusive view of performance, availability, and data distribution**
  
- **“Building in” of a target, and data normalization around it**
  
- **Performance is evaluated qualitatively against a target**

Slide 4

## Data Source and Collection



- Using commercial 3<sup>rd</sup>-party tool to gather measurements from multiple geographic locations
  
- Data of interest for our Apdex calculations
  1. Date/Time
  2. Measurement Value
  3. Success/Error (Error = Frustrated)
  4. Test Location
  
- Data collection is batched (daily)

Slide 5

## Calculation and Graphing in Excel



- Calculate *sub-score* for each row (data point)
  - If (error) score = 0
  - else if (measurement <= T) score = 1
  - else if (measurement <= F) score = 0.5
  - else score = 0
  
- Define interval over which to calculate Apdex score
  - Hourly, daily, weekly, etc.
  - Segregate by location, if desired
  - Apdex spec recommends >100 data points per interval
  
- Then calculate overall Apdex score for interval  
=sum(sub-scores) / count(measurements)
  
- Get fancy with DSUM() and DCOUNT()
  - Database lookups simplify segregation by date, location, etc.

Slide 6

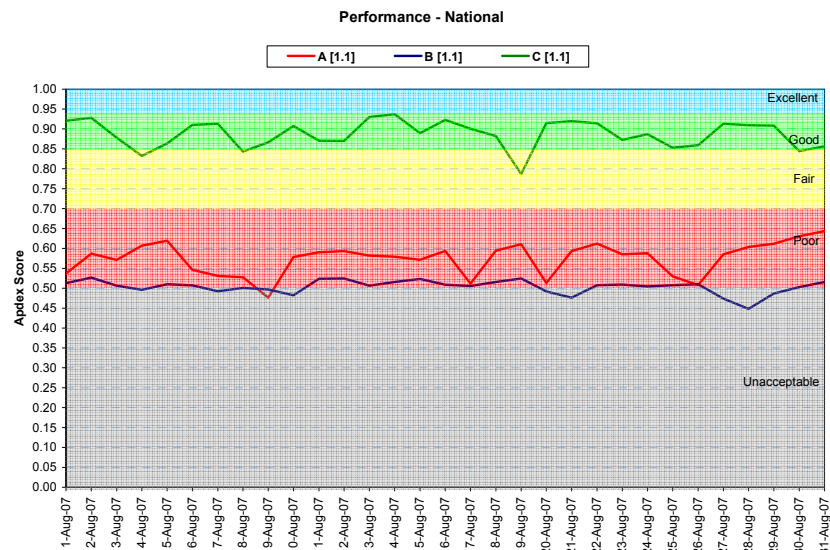
## Target 'T' Determination



- We chose our targets based on competitor performance
  - For a given Web site, identify its target competitor (may be self)
  
- The 'T' marker method we chose initially was based on "Best Time Multiple"
  - "Measure average response time from a 'good' location, then add 50% to build in tolerance for other locations"
  
- Instead, we averaged data from all locations
  - Our thinking was that the 50% inflation wasn't necessary because of the natural diversity of the data from multiple geographic locations

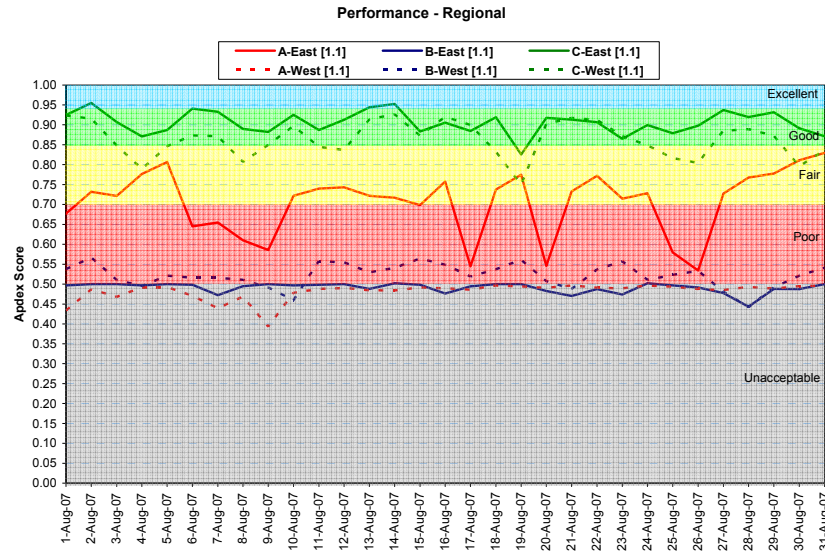
Slide 7

## Example Results Presentation



Slide 8

## Example Results Presentation *cont'd*

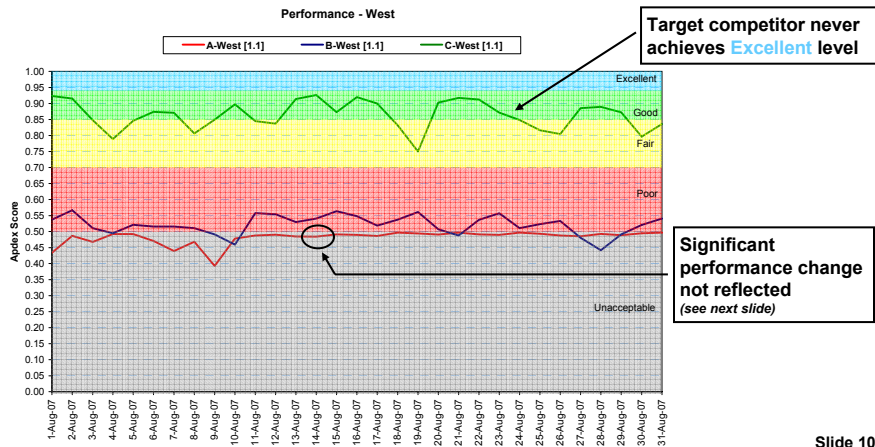


Slide 9

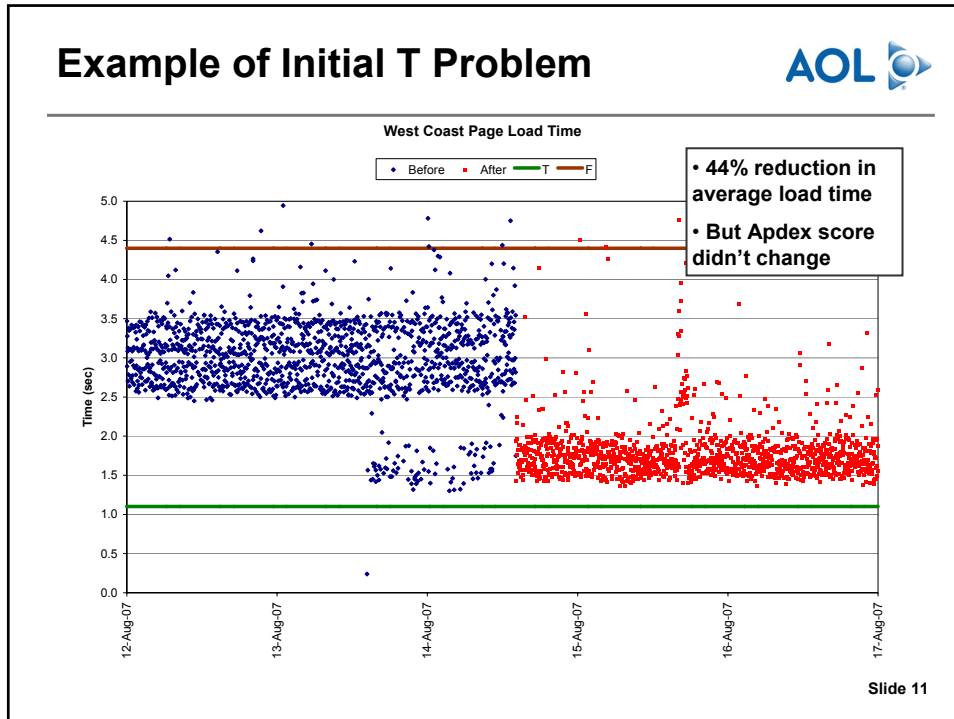
## Problems with our initial T



- Initial results were promising...but as we examined data over time, the Apdex results didn't always correlate well with observations



Slide 10

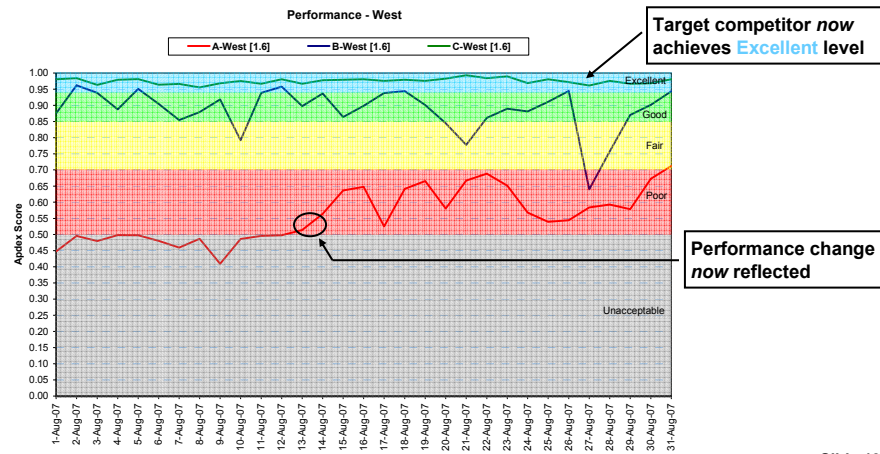


- ## Plan B
- 
- **We experimented with various T determination techniques, and eventually settled on the “Empirical Data” method**
    - “Find T that results in the proper Apdex for a well studied group”
  
  - **In our environment...**
    - **For a given Web site, identify its target competitor (may be self)**
      - The performance of this competitor is defined as “Excellent”
    - **Determine the smallest T such that the competitor’s Apdex score remains Excellent for a period of time (at least 1 month)**
- Slide 12

## New T



- With the new T, the Apdex results correlate better with observations



Slide 13

## Changing T

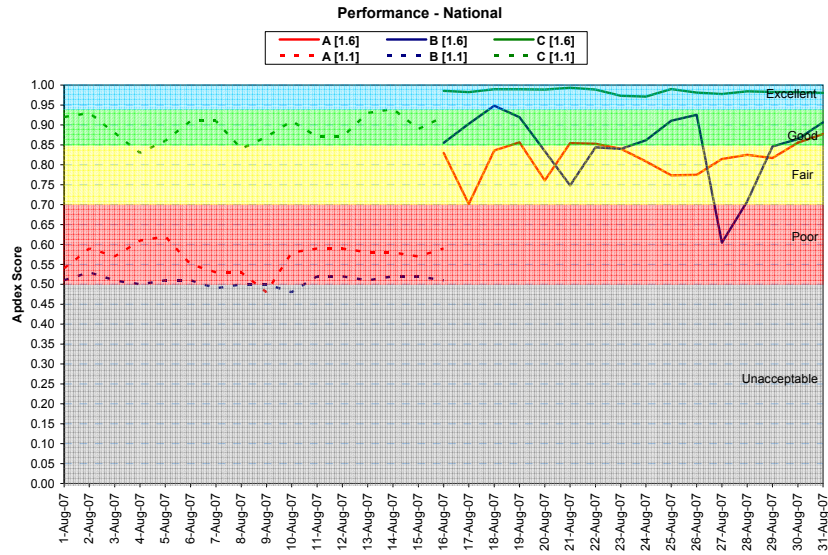


- Define technique for reevaluating T on an ongoing basis
  - But don't want to change T too often
- Suggestions for reevaluating T:
  - Quarterly, looking at prior 3 months of data
  - When a significant product change occurs
  - When requested (from business)

Slide 14

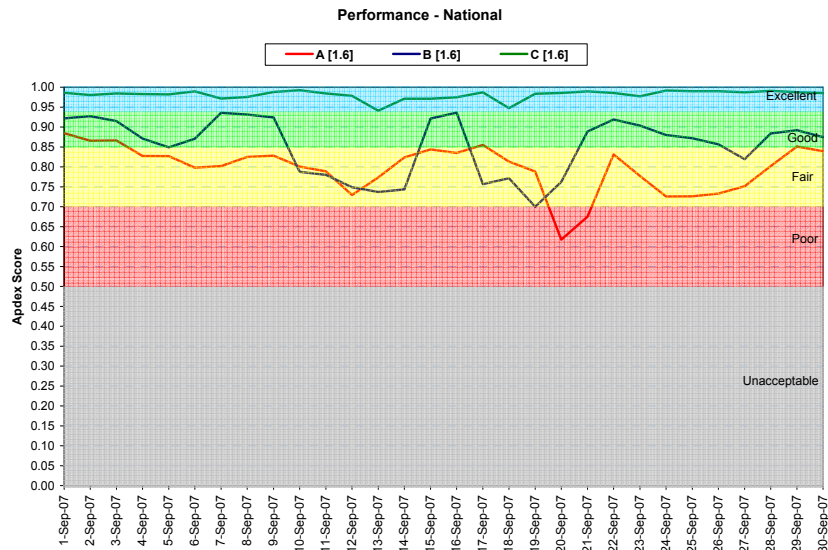
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## Example - T Change



Slide 15

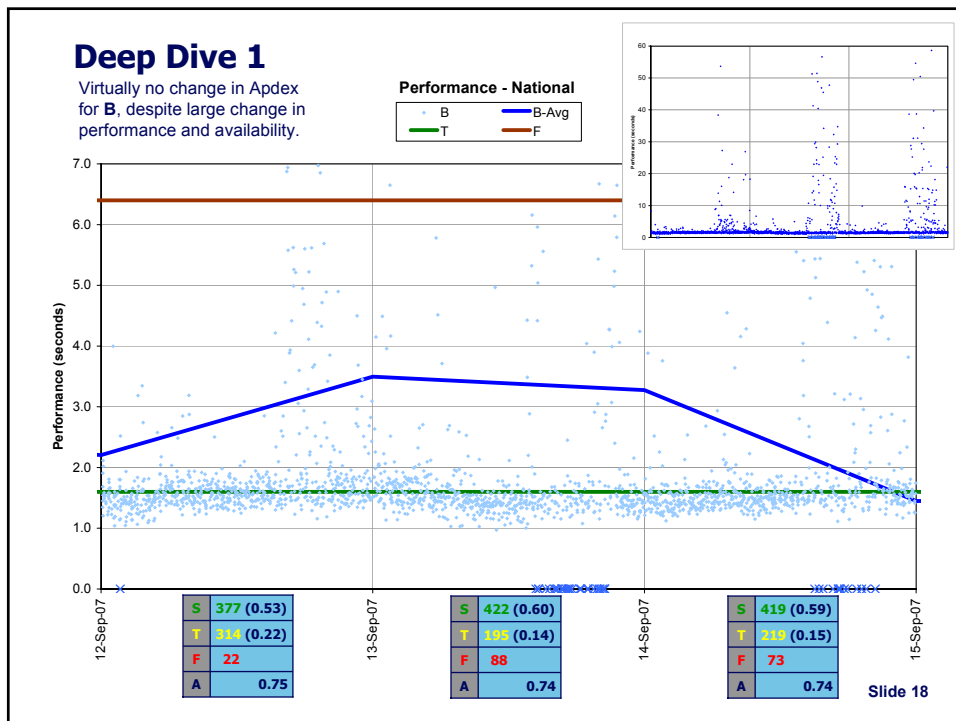
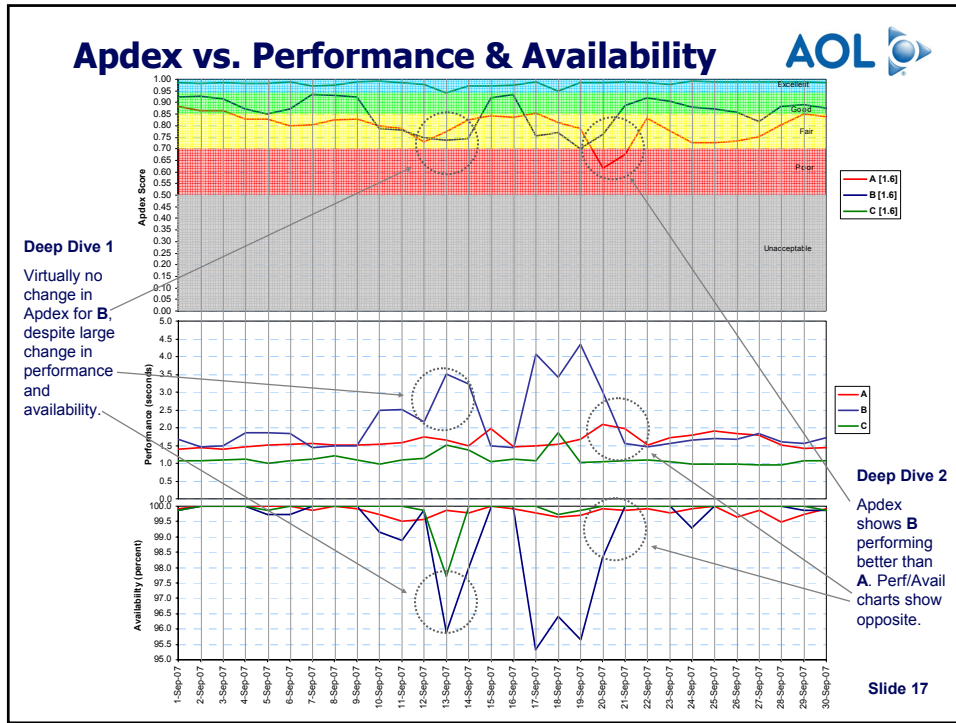
## Apdex vs. Other Metrics



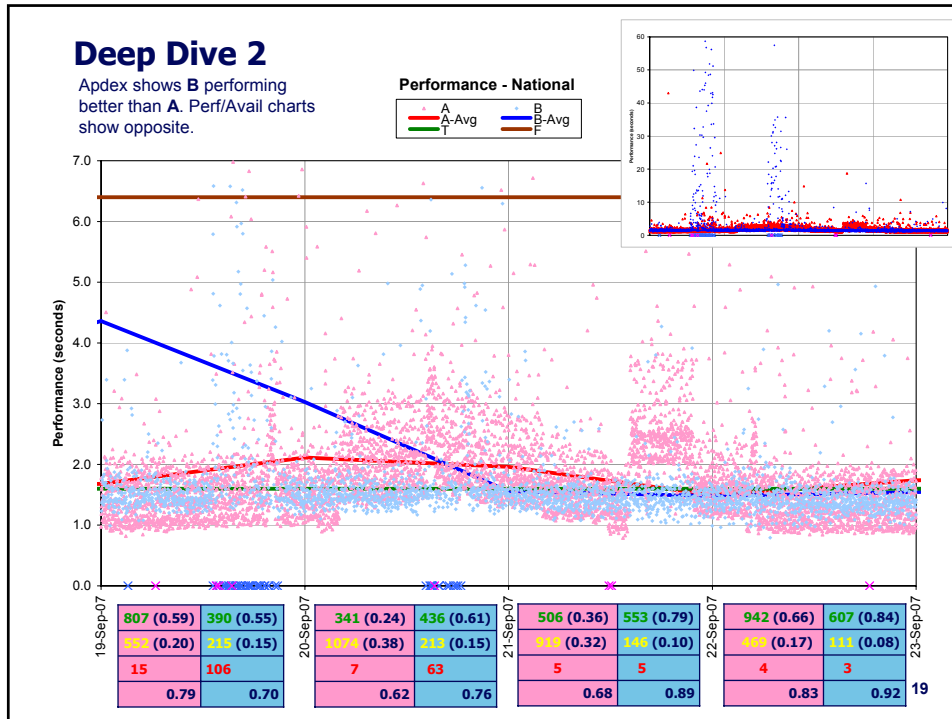
Slide 16



# Session 45A Apdex Case Studies



## Session 45A Apdex Case Studies



## Closing Thoughts



- We're still exploring the application of Apdex in an Operations organization
  - Can Apdex be used to identify the day to day "issues" traditionally identified through analysis of performance and availability metrics?
  - Or is it better suited as a method of performance representation for the business side of the house?
  
- Interesting to calc: what would it take for a product to achieve the next "band" of performance
  - What performance level do I need to move from Poor to Fair
  - Help in establishing interim targets

**Thank You**

**Questions?**

