On the future of the TTM service

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Introduction

- TTM
  - Initial design done early 1997
  - Became a service in 2000

- 9 years later, time for a critical look
  - What is good?
  - What is not so good?
  - How can we improve

Assumptions when designing the system

- Delay and loss occurs on loaded links
  - Still true, property of the underlying layers

- Network capacity is an expensive resource
  - 1997: Buy as little as possible, wait for delivery
  - 2006: Prices have dropped dramatically, readily available

- Subscribers line is slow
  - 1997: 28k modem was state of the art
  - 2006: ADSL and Cable are cheap and standard

Assumptions when designing the system (2)

- Measurements of applications are not interesting as the link to the user is the bottleneck

  - 1997: Last mile was slow

  - 2006: No longer true

- Internet is sparsely connected, routing has not been optimized

  - 1997: We see traffic going across the Atlantic between two sites a few km apart. Delays indicate non-optimal routing

  - 2006: Well connected Internet

Assumptions when designing the system (3)

- Real Time Traffic Engineering based on performance measurements cannot be done

  - 1997: It is acceptable to measure and have numbers tomorrow

  - 2006: Requirement for measurements with results on the spot

- IPv6

  - 1997: Only experimental

  - 2006: Production

- Stratum 1 NTP server is a useful thing to have

  - Still true

Deployment and maintenance issues

- Installation of the GPS antenna

  - CAT5 help, but still complicates installation

  - No support for other clock sources

- No replacement strategy for boxes

  - The older the hardware, the more problems

  - We cannot force people to upgrade their equipment

- Losing contact with the boxes

  - People leave companies, lose interest

  - No remote hands, hard to debug some problems

Reality Check

- TTM Service
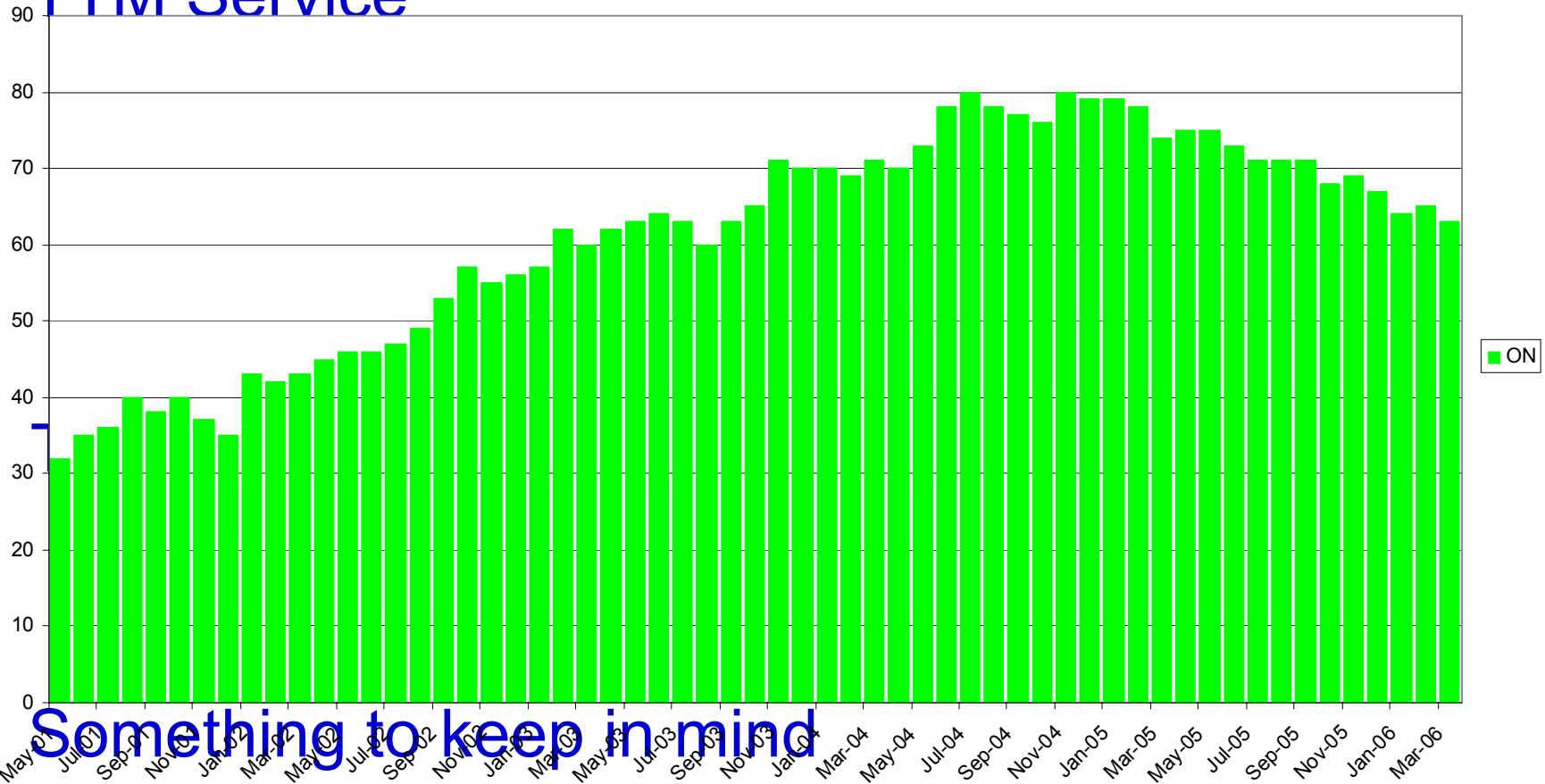
- Something to keep in mind
  - Developing a new service takes time, we should build something that is useful for the next 2-5 years

How can we improve?

Simplify and Refocus:

- From network to application

  - More composite measurement, but also more relevant to the end user

- On real time monitoring

  - Small data set that is of immediate use

- From long-term stable observations to ad-hoc measurements

  - Only measure on demand

  - Platform for one time measurements

Some rough ideas

- Measure applications

  - Examples: DNSMON, protocol beacons

- Global one-way measurement platform

  - Measurements on demand

  - Data immediately available for the user

  - Example: OWAMP server network

- General purpose platform

  - Proposal, experiment, analyze, done

  - Example: K-root anycast studies, multicast

Possible architectural model

- Full control of the infrastructure by the RIPE NCC

  - Replacement strategy

  - Better control of locations with TB

  - Similar to k-anycast network

- Multi-tier architecture

  - Simple collectors and more complex aggregators

- TSC or NTP instead of GPS

  - Accept some degradation in accuracy but lower cost and easier deployment

How do existing proposals fit in

- 2005-10/CBM

  - Uses the infrastructure

- 2005-11/Multicast

  - Something to run on demand

- OWAMP

  - Measurement on demand

  - Initiator gets the data immediately after the measurement

  - Can analyze the data and act

- TSC: light weight "TB".

How to proceed?

- Should we change?

- Is this presentation a good starting point?

- How to develop an elaborated proposal?

- What is the timeframe?

Questions?