7 minutes
on
draft-ash-alt-formats
and
using (La)TeX for IDs

Yaakov (J) Stein

draft-ash-alt-formats
Problem Statement

00 version Dec 2005
coauthored by Gerry Ash, Stewart Bryant, Y(J)S

Identified the following problems with pure ASCII format

1. difficult to capture equations
   critical for *some* WGs

2. ASCII art hard to generate and overly limits complexity
   block diagrams, state machines, protocol diagrams

3. present day display/print tools not optimized for ASCII
   and problem has worsened with prevalence of
   small-screen devices

Examples

Equation

$$\sigma_y^2(\tau) \equiv \langle (y_k - y_{k-1})^2 \rangle_N = \frac{1}{2(N-2)\tau^2} \sum_{k=2}^{N-1} x_k^2 - 2x_k x_{k-1} + x_{k-2}^2$$
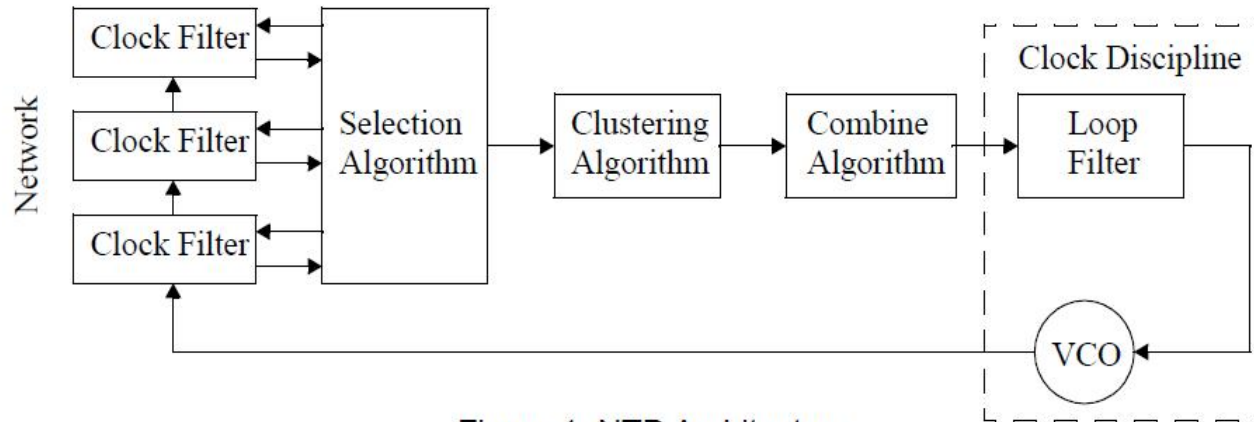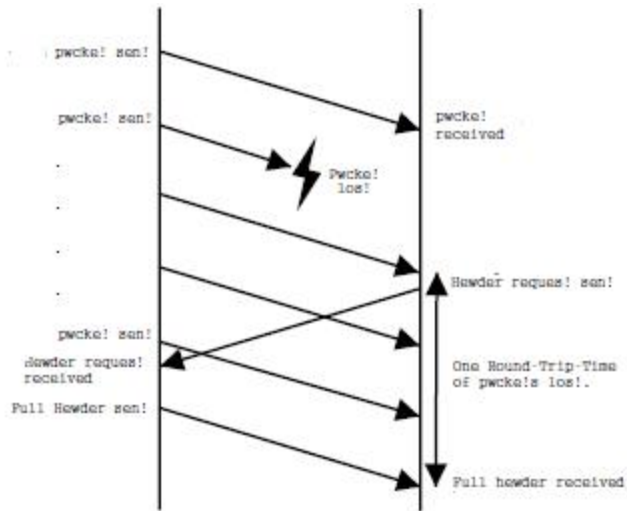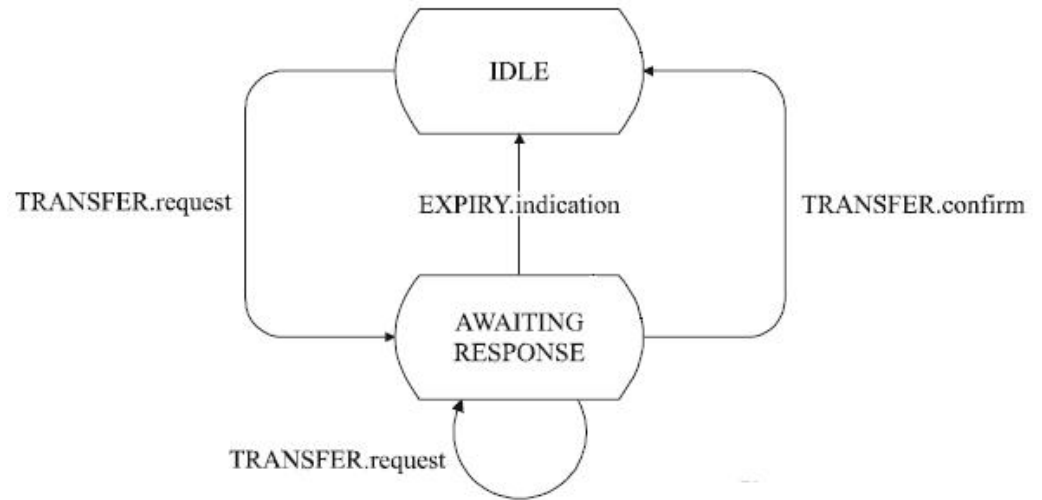
Block diagram

Figure 1. NTP Architecture
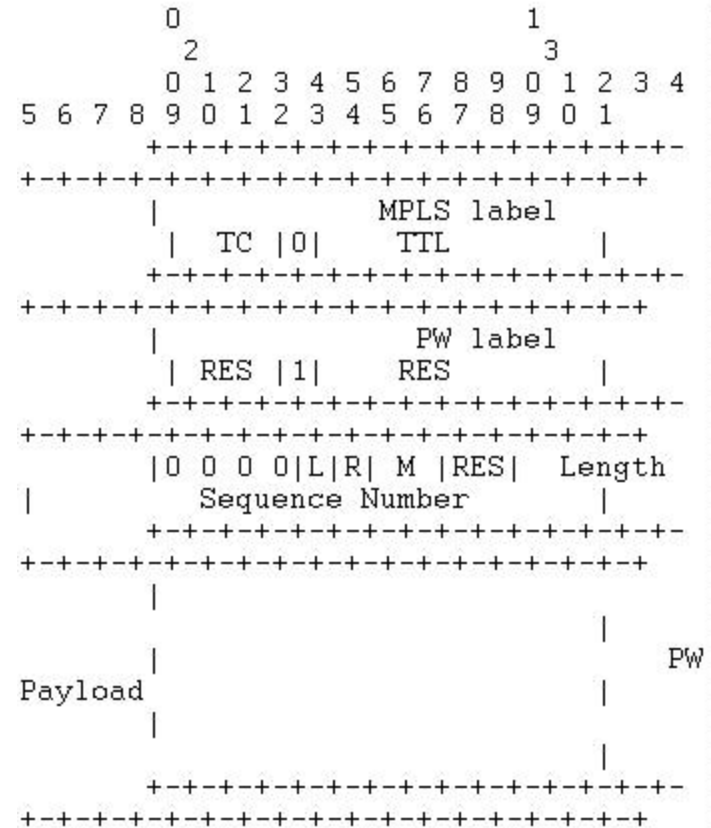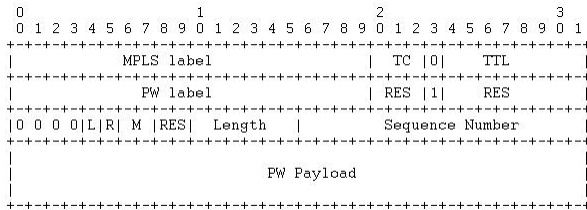
Examples (cont.)

Protocol timeline

State machine

ASCII art on an iPhone

ASCII is not readable today !

pdf displayed horizontally

text

draft-ash-alt-formats Proposed Experiment

the draft proposed

- adding new normative (input & output) formats
  PDF as a normative output format
  XML and OpenOffice as input formats

- an RFC 3933 experiment, with
  - NTP for formulas
  - U-TURN (IP fast reroute) for diagrams

The experiment was never carried out

Another solution

These problems *could* be solved in a different way
by augmenting the existing RFC 2629 XML format

The input format would remain XML (ASCII)
and so would live forever

Add-ons :
- equation editor (TeX based?)
- basic line graphics (SVG based ?)
- special-purpose block diagram language
- special-purpose protocol time-line diagrams
- etc.

Rendering engines would produce equations, diagrams, etc.

However, why should the IETF develop typesetting tools ?

It is not our main focus, and a similar tool already exists !

(La)TeX

TeX is a professional typesetting language
   developed by Knuth for his Art of Computer Programming series
   completely open-source

(LaTeX is one easy-to-use interface to TeX)

TeX is universally used by science/math journals
   and a wealth of tools and drivers exist

TeX to HTML/PDF/text drivers are available

TeX syntax is NOT XML (uses \xxx instead of <xxx>)
   but is pure text (not WYSIWYG, but for simple text - just type !)

TeX
   excels in equations and
   can easily handle block diagrams, protocol time-lines

East to write an "RFC text" format and drivers
   but some maintenance will be required

LaTeX is easy

```
\documentstyle[std,trust200902]{rfc}
\begin{document}
\section*{Abstract}
  This is the abstract.
\section{Introduction}
  Some introductory remarks including a formula $E = m c^2$.
\section{Protocol}
  Let's describe the protocol. Just type, LaTeX will do the rest!
  Look at Figure \ref{fig1} on page \pageref{fig1}!
\subsection{Details}
  Some more details and a figure.
  \begin{figure}
   % some figure-drawing commands
   \label{fig1}
  \end{figure}
\bibliography{references}
\end{document}
```