

# AIXM 5 Temporality Model (Abridged)

Washington D.C. | October 10 - 11, 2007

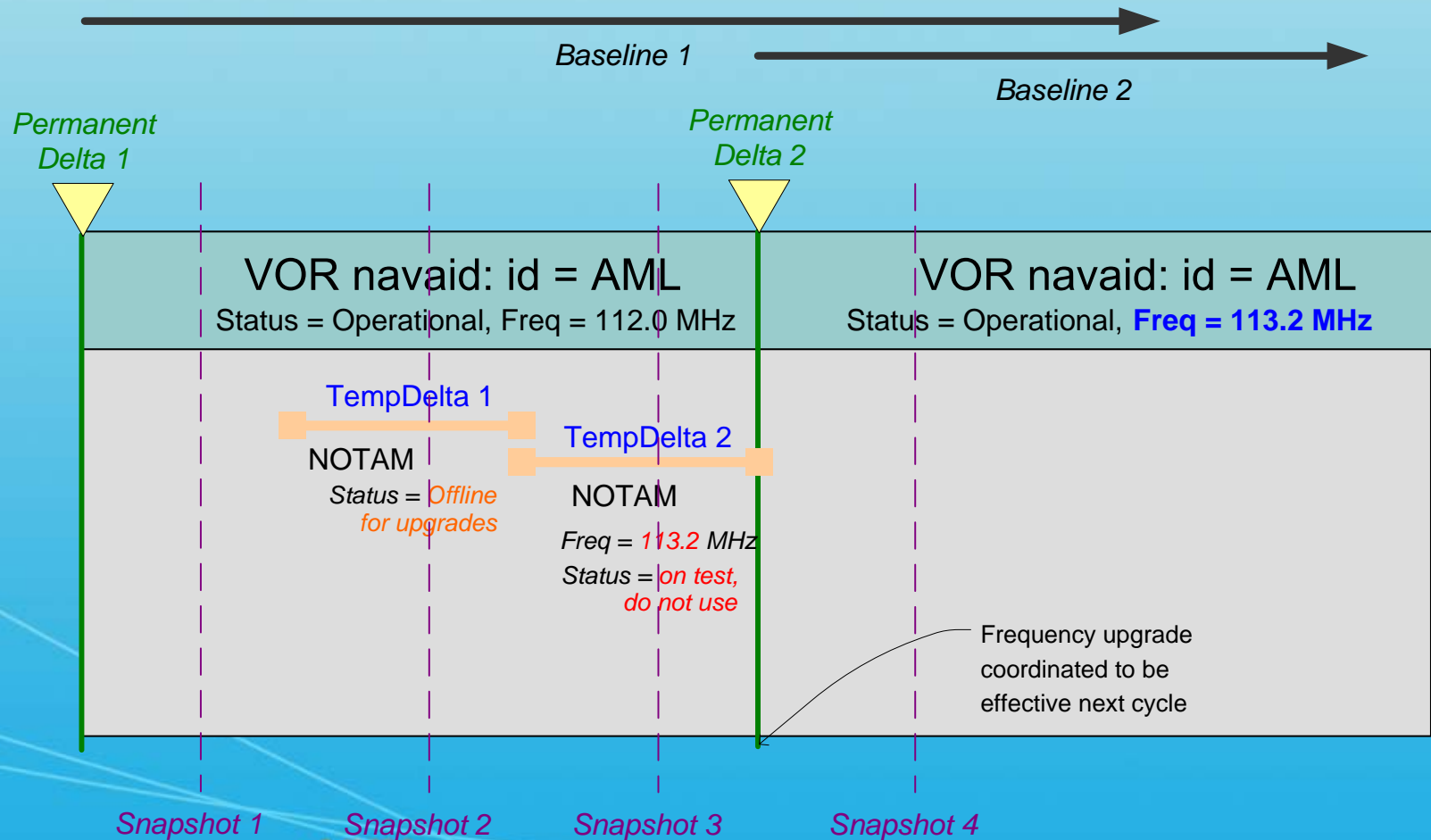
AIXM Class | **2007**

Eddy Porosnicu EUROCONTROL



# An Example: Navaid frequency change

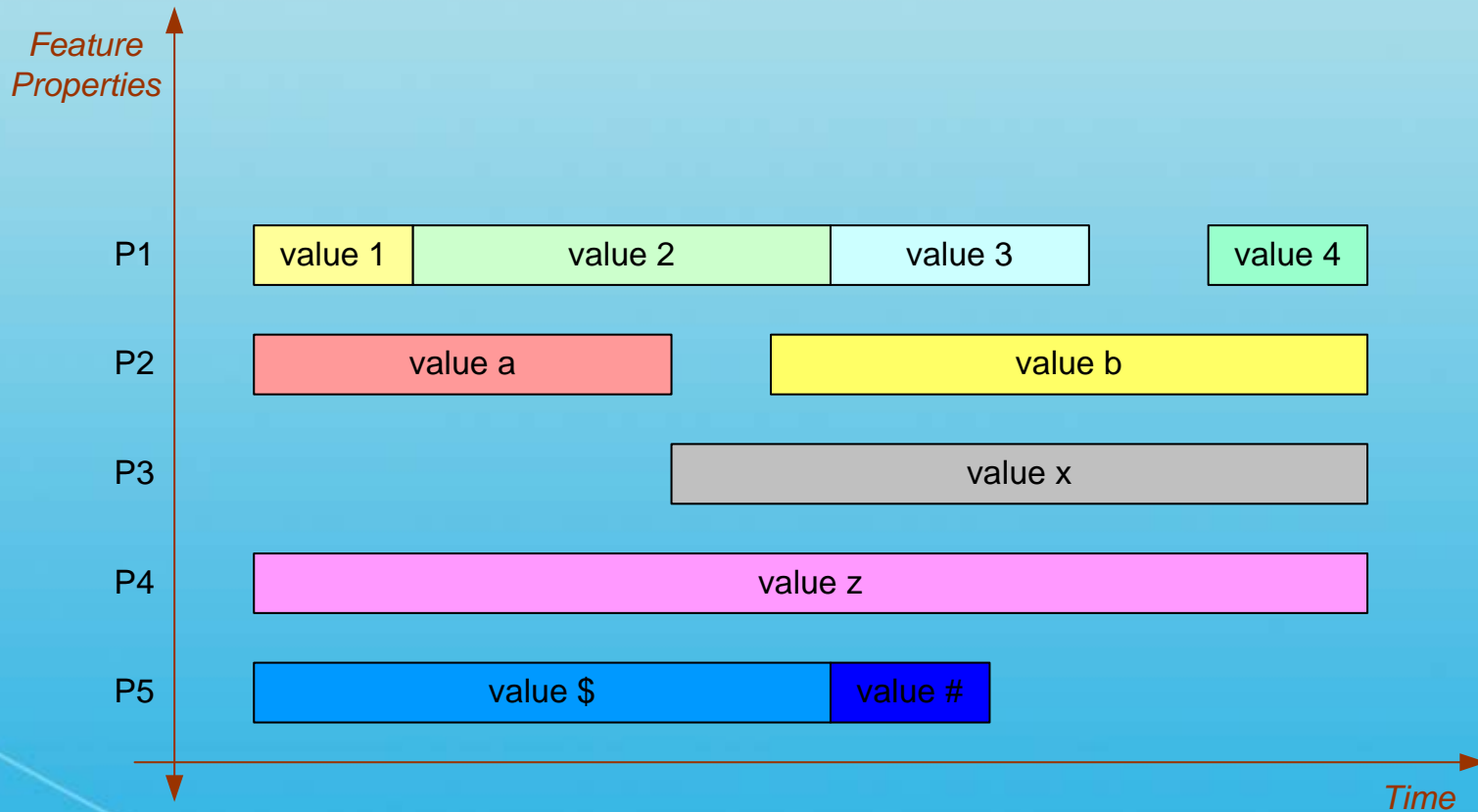
Imagine that AML Navaid undergoes an upgrade that changes its frequency from 112.0 MHz to 113.2 MHz...



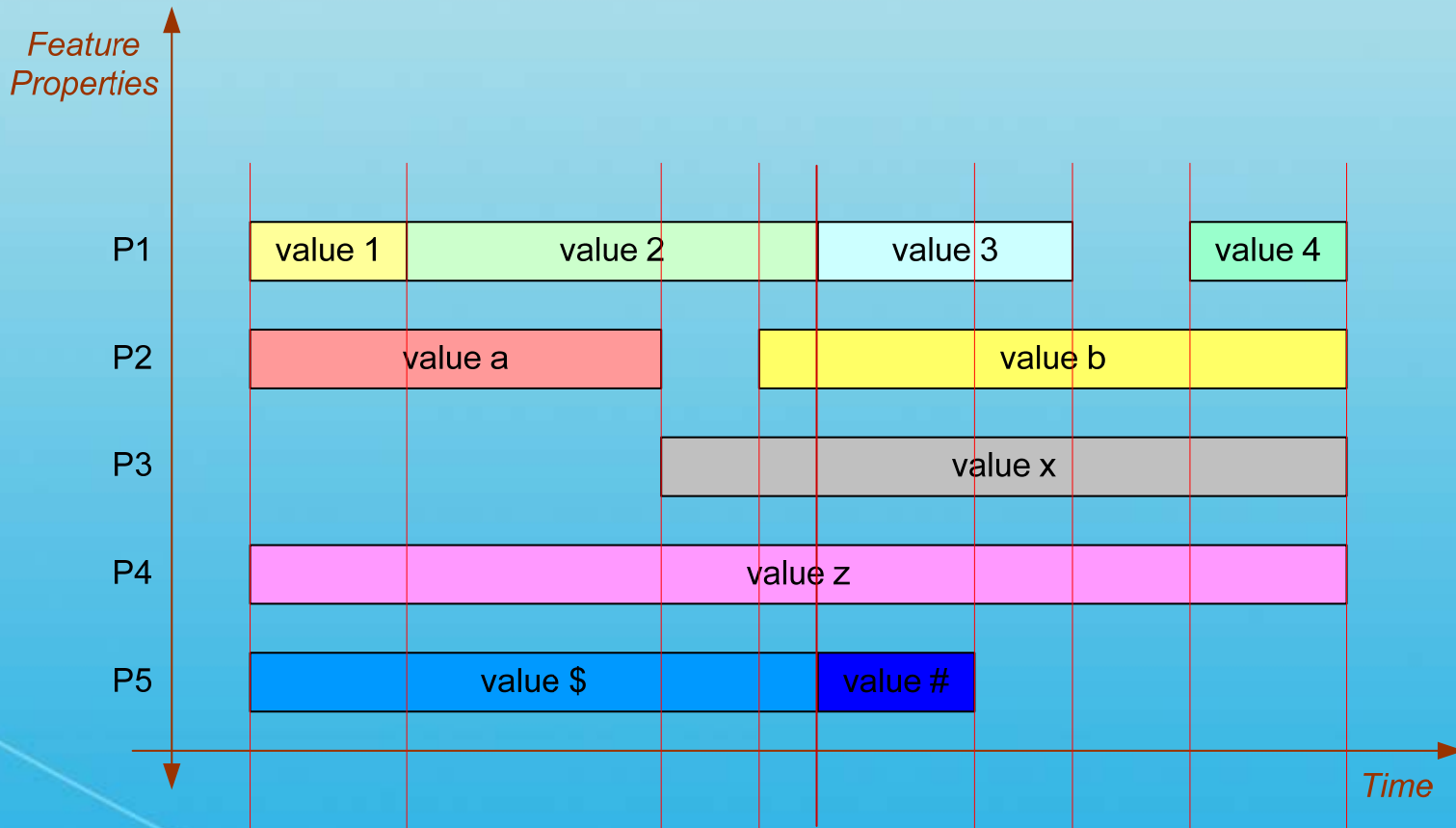
# Building the temporality model

- Time is essential for AI
- For operational reasons, distinction between:
  - permanent changes
  - temporary status
- Two levels
  - Life of the feature
  - Changes in properties

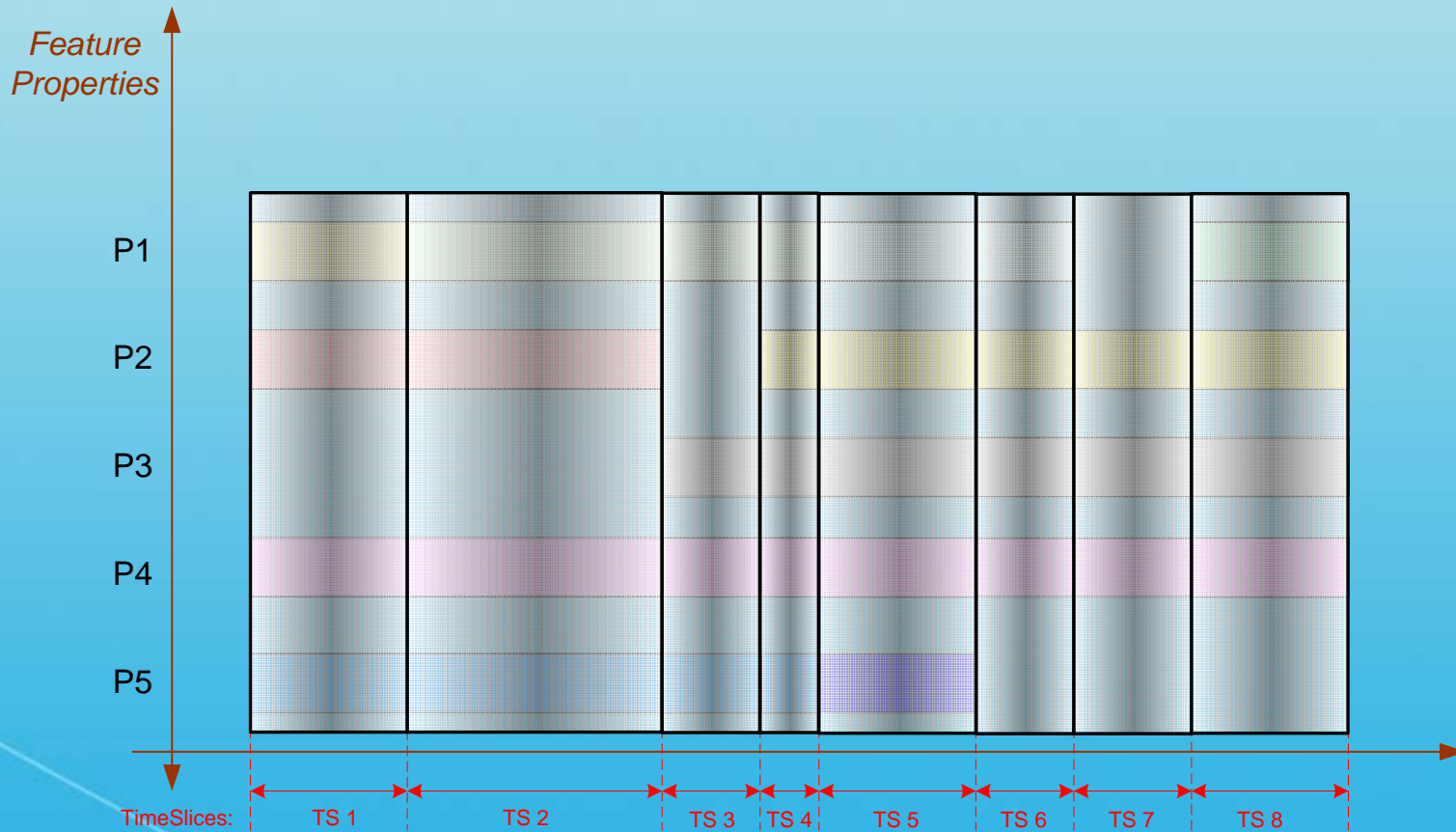
# Time varying properties



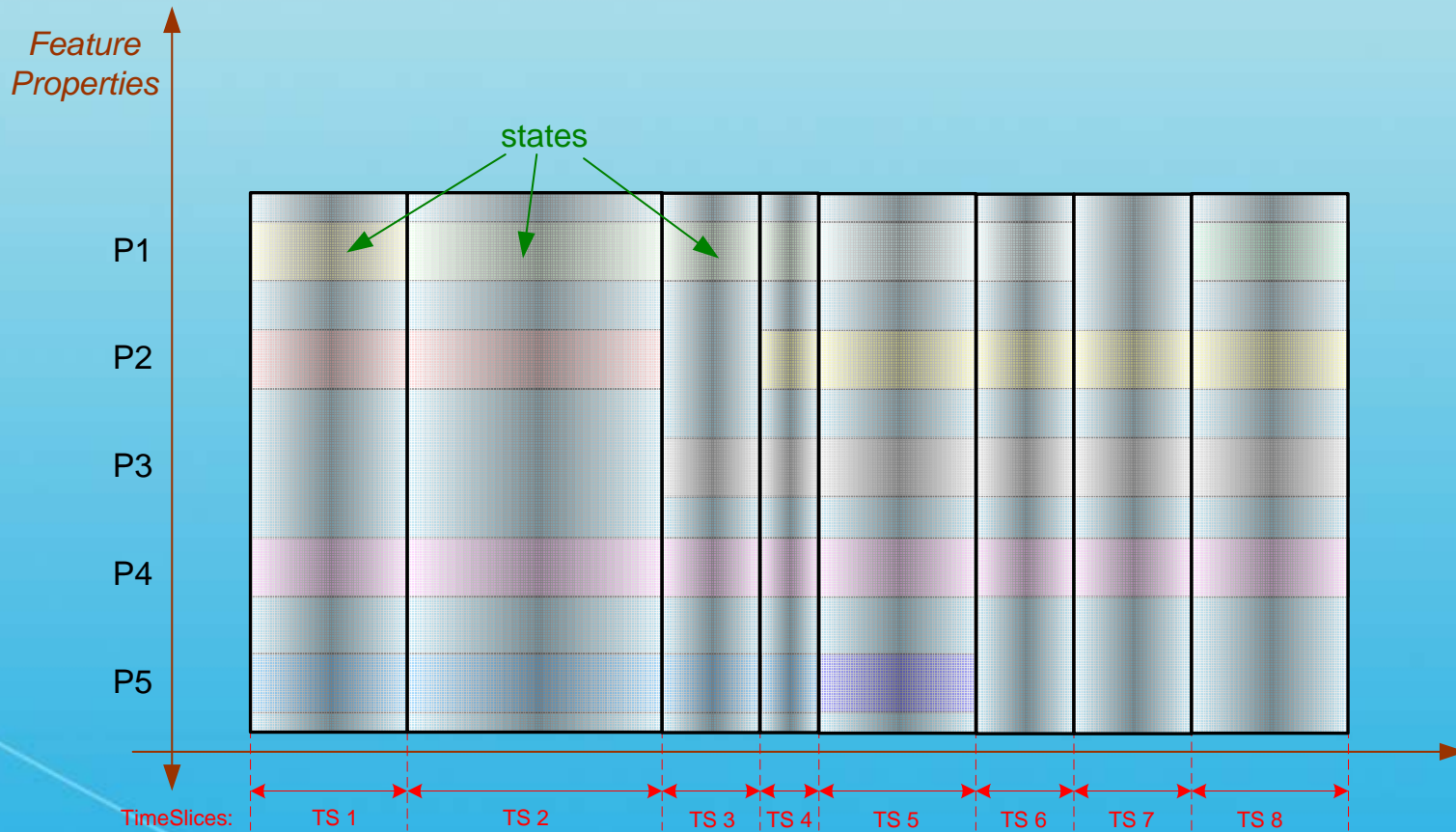
# The basic Time Slice model



# The basic Time Slice model



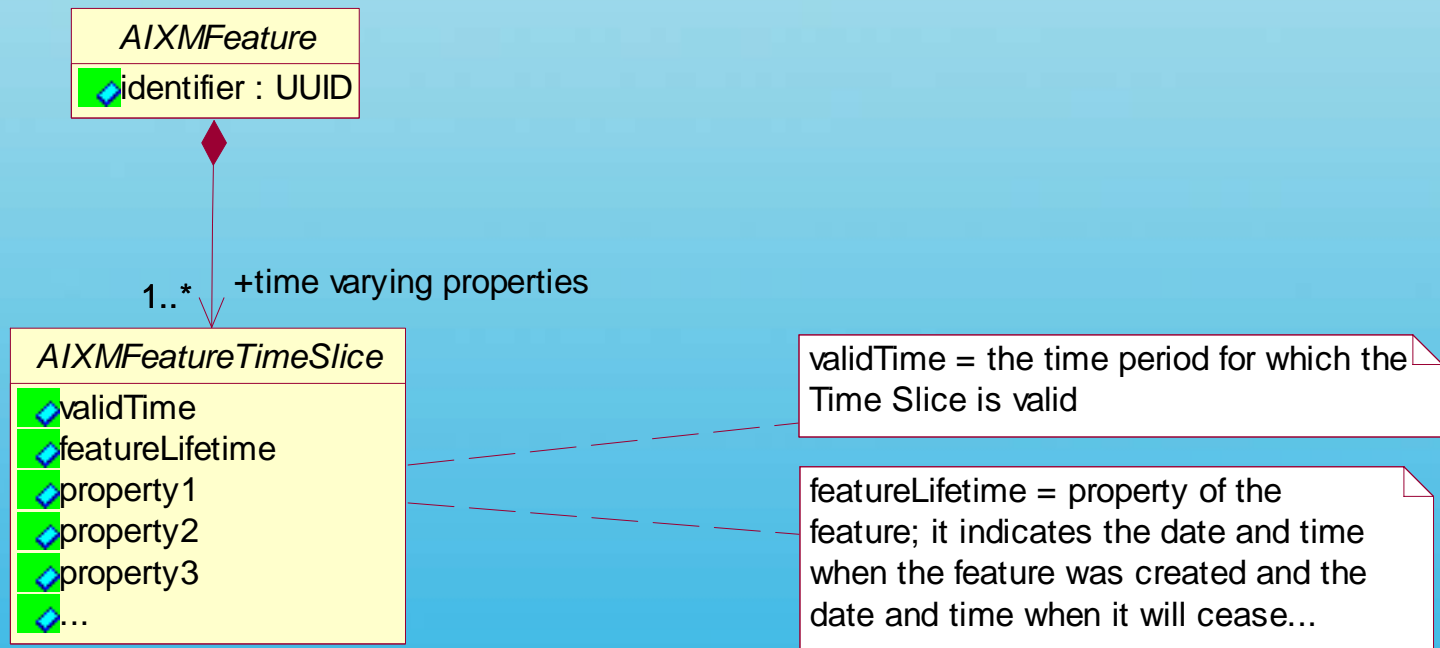
# The basic Time Slice model





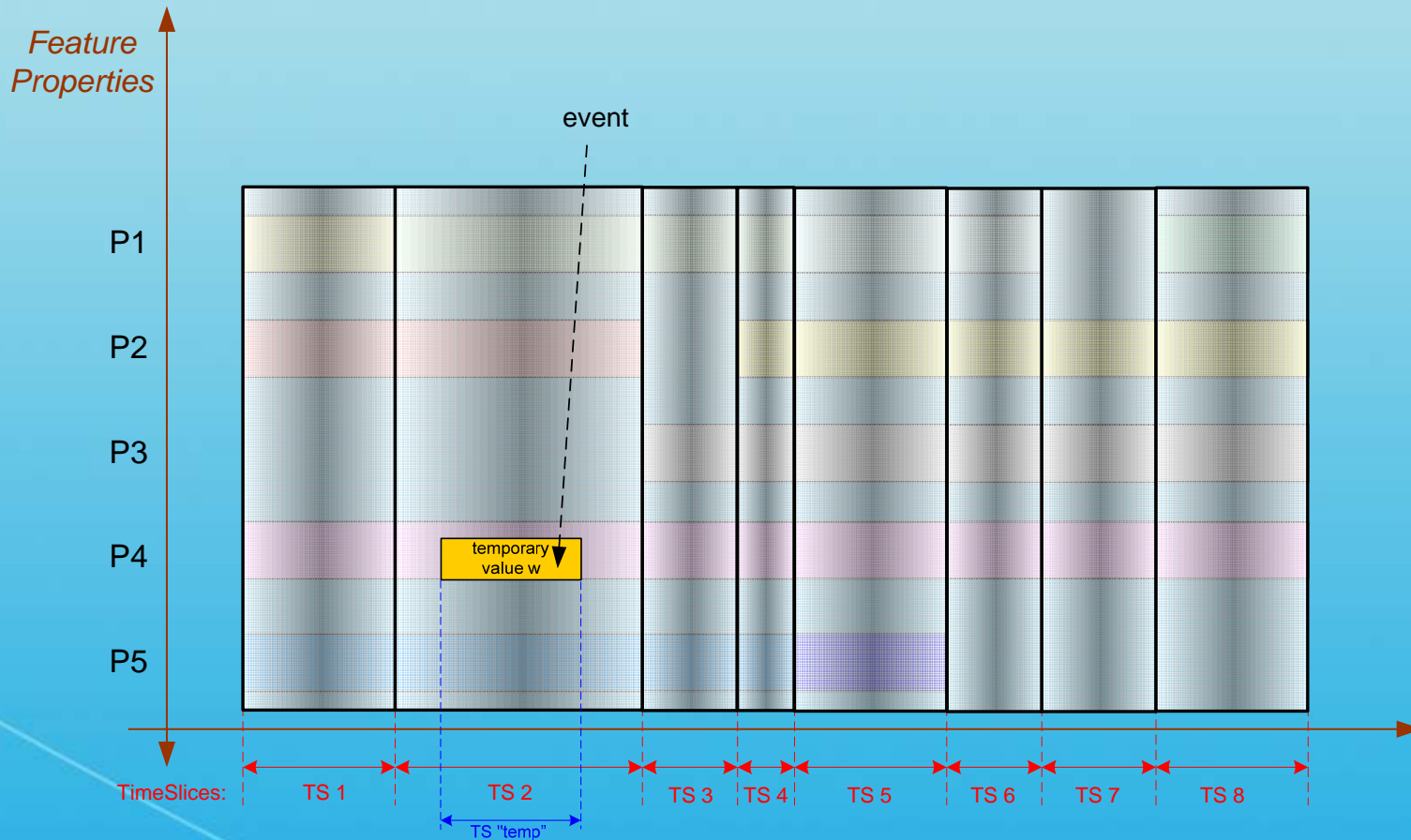
# The basic Time Slice model

UML



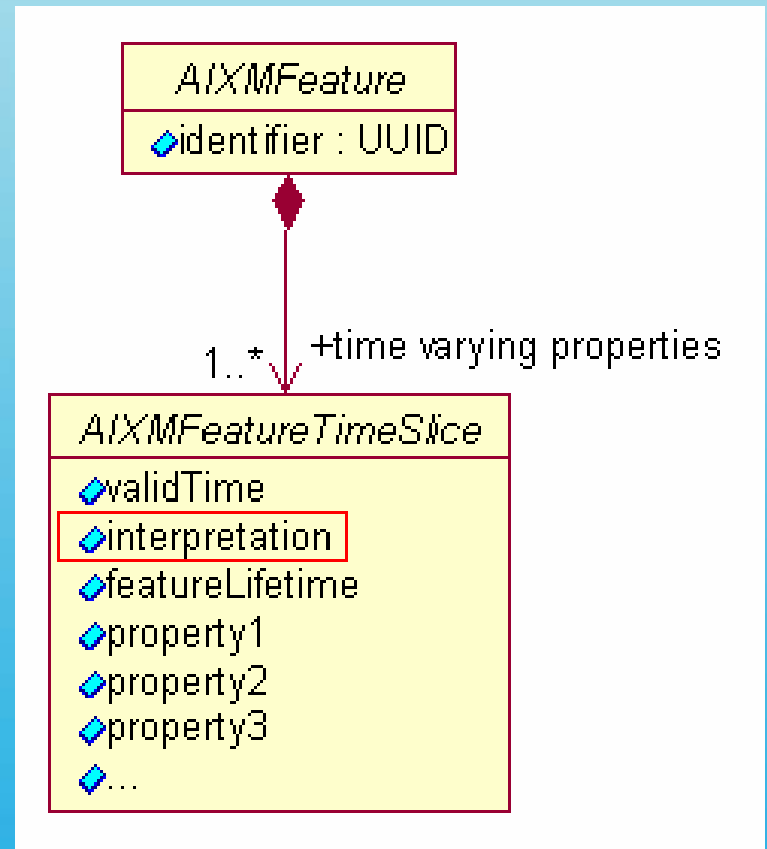


# Temporary events



# Temporary events

- Two kinds of Time Slices
  - **Baseline** = describes the feature state (the set of all feature's properties) as result of a permanent change;
  - **Temporary Delta** = describes the transitory changes of a feature state during a temporary event.



# The model up to this point

## BASELINE & TEMPDELTA

- Compliant with the requirements for
  - Completeness - all temporal states must be representable;
  - Minimalism - use of minimal number of elements;
  - Consistency - no reuse of elements with different meaning;
  - Context-free - meaning of (atomic) elements independent of context; no functional dependency of (atomic) elements at the data encoding level;
- But, a bit inconvenient for real applications...