Large PI Deployment

A.B.I.'s Experience

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A.B.I.'s Experience

Who's A.B.I.

Why We Needed PI

The Deployment

Where We Intend To Go

Who's A.B.I.

- **Aluminerie de Bécancour Inc.**

Who's A.B.I.

– **An aluminum smelter.**

– **In the town of Bécancour, on the South shore of the St-Lawrence river, half way between Montréal & Québec City**

– **Covering a 1.5 km (1 mile) by 1 km (0.6 mile) area**

– **5 plants in 1**

Québec

Montréal

Bécancour

Who's A.B.I.

- **Two potlines built in 1986 to produce 240 000 mt of aluminum**
- **Addition of a third potline in 1990 to increase production to a total of 360 000 mt**
- **We are currently producing 376 000 mt**
- **We have three owners**
  - Reynolds Metals Corporation (U.S.)
  - Alumax (U.S.)
  - Pechiney (France)

Who's A.B.I.

– **We transform alumina (Al_2O_3) into molten aluminum which is cast into three types of products :**

- Slabs : flat rolling - foil, beverage cans, ...
- Tee ingots : remelting - car wheels, ...
- Extrusion billets : extruding - tubing, window frames, …

– **Targeted markets :**

- Car industry
- Consumer products
- Construction industry
- air tanks for scuba diving

Why We Needed PI

- **The current situation**
  - **Our old architecture**
    - 18 PDP11 used as HMI's and SCADA
  - **Our major weakness: PDP11**
    - Small amount of aggregated data available to the production staff through our MIS
      - **Relic of the RS-232 era**
      - **Inability of the PDP11 to process large amounts of data**
    - They don't pass Y2K as is

Why We Needed PI

- **The Potline Project**
  - **Fast access to pot information**
    - 240 pots per potline
    - With PDP11 : 1.5 min / pot
      - **240 pots * 1.5 min/pot = 6 hours**
      - **our operators work 12 hour shifts**
    - Data from 17 tags per pot at an average rate of 30 sec for 72 hours
    - Desired access time : 10 sec

Why We Needed PI

- **The Potline Project**
  - **Graphical interface**
    - With PDP11 : ???
    - Interface desired by user : Windows style
    - The users had examples of an application from Tomago, an aluminum smelter in Australia

Why We Needed PI

- **We want to make PI an important part of our production process reengineering**
  - **A production data archive**
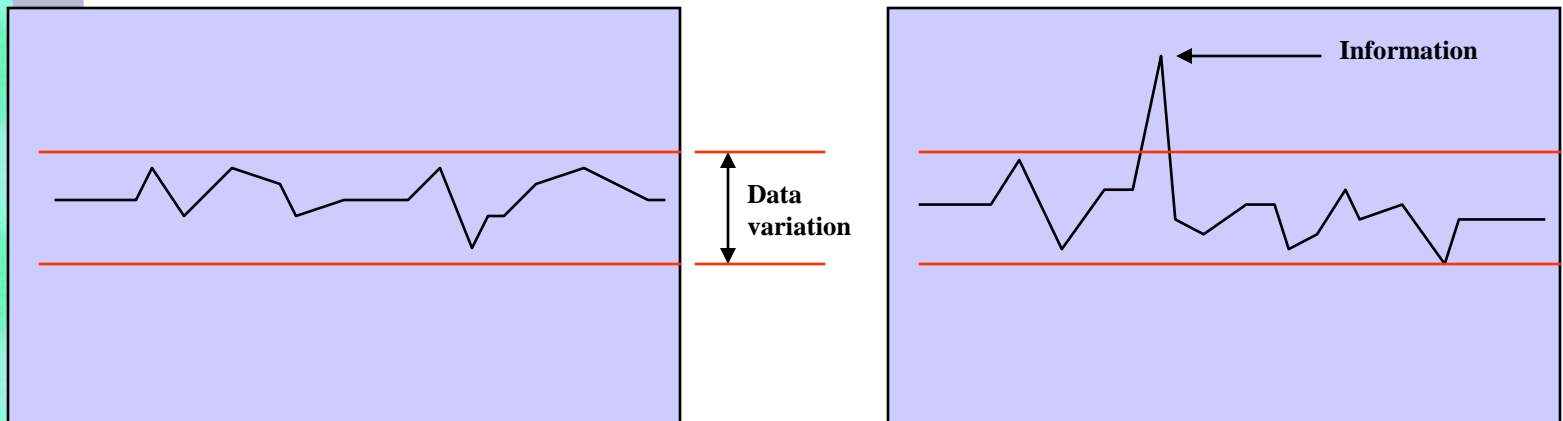 - **Batch management**

The Deployment

- **Prerequisites**
  - **Have your users determine what data are important to them**
  - **Present the available tools from OSI**
    - ProcessBook
    - PI DataLink
  - **Have them outline the desired views of their information**
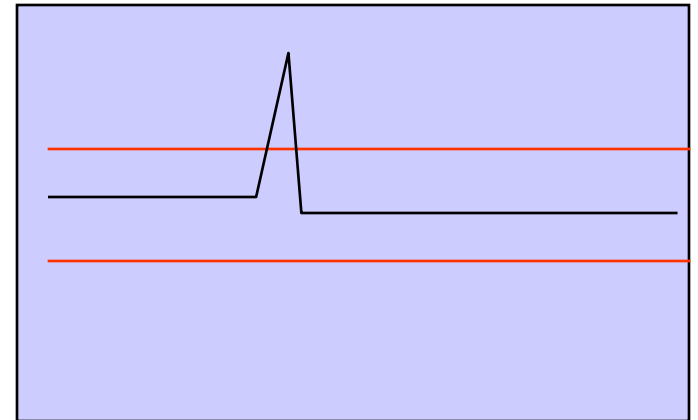   - Graphics
    - Reports
    - Synoptics

The Deployment

- ## Prerequisites
  - **Underline the difference between data & information**

Data variation

Information

The Deployment

- **Prerequisites**
  - **Underline the difference between data & information**

The Deployment

- **First Step**
  - **Alpha 2000 with OpenVMS**
  - **Potline #2**
  - **30k tags**

The Deployment

- **The Potline Project**
  - **Solution**
    - PI as the data archive
    - Delphi 2.0 to develop the user interface & the application
  - **Result**
    - Access time : 5 sec

The Deployment

- **First Step**
  - **Problems**
    - lack of tags
      - **240 pots * 100 tags**
      - **Calculated tags**
      - **group tags**
      - **potline tags**
      - ***Sum > 30k tags***

The Deployment

- **Second Step**
  - **Alpha 2000 with OpenVMS**
  - **Casthouse**
  - **35k tags**
- **Third Step**
  - **Alpha 800 with OpenVMS**
  - **Potlines #1 & #3**
  - **40k tags**
  - **Potline #2 : additional 10k tags**

The Deployment

- **Next Step**
  - **Alpha 800 with Windows NT**
  - **Anode making**
  - **30k tags**

The Deployment

- **Warning:**
  - **Standardizing to Windows NT**
    - Migration problems
      - **Alpha 2000 OpenVMS to Alpha 800 NT**
      - **Migration tools not available**
    - Command Line Management tools
    - ***Waiting for version 3.2 on NT***
  - **Carefully evaluate your tag needs**
    - More can be cheaper then less
  - **Don't limit the number of tags**
    - Our users are archiving everything

Where We Intend To Go

- **Event driven publishing**
  - **SQC driven (SQC server)**
  - **Event Subscribe & Publish**

- **Plantwide product tracking (genealogy)**
  - **via Intranet & Windows stations**