Visual Signal 1.3
DAQ , External , Matrix

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Outline

- The Platform Concept
- DAQ Module
- External Module
- Matrix Module

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The Platform Concept

1. A Signal Processing Platform
   - Module Plug-in Architecture
   - License-Controlled Features
2. Domain-Specific Applications powered by Visual Signal
   - Joint-Development with Third Parties

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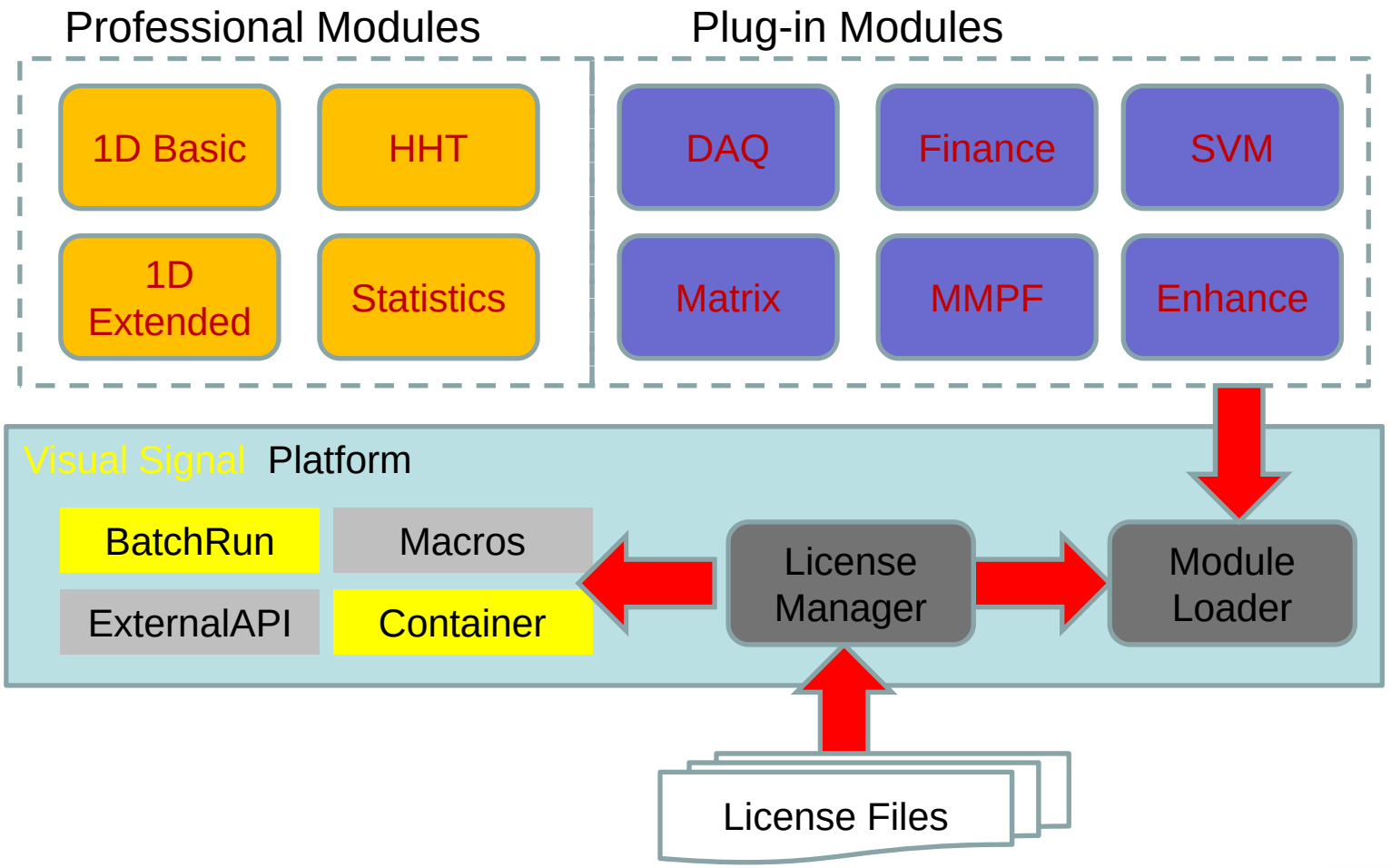
The Visual Signal Platform



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DAQ Module

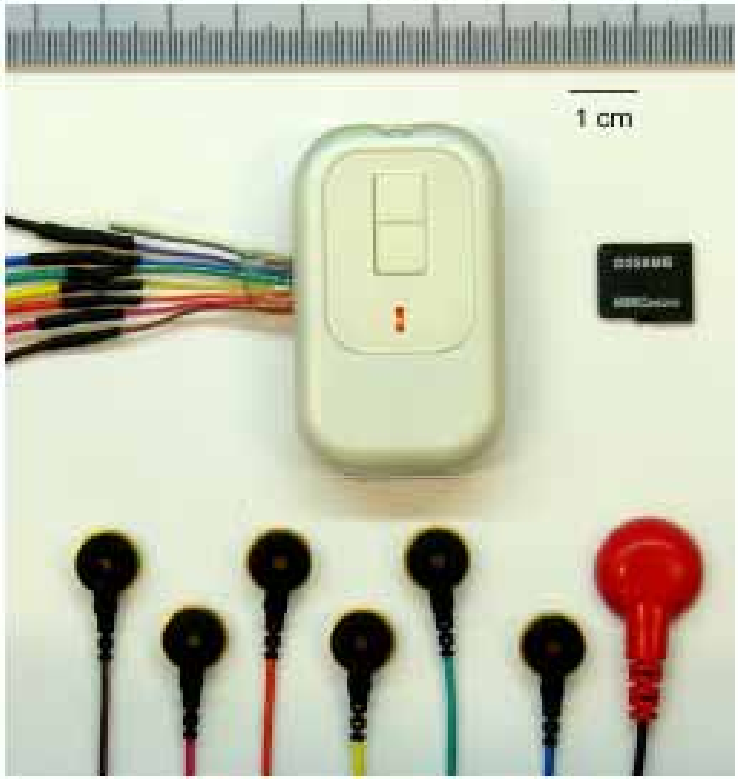
- DAQTD1A

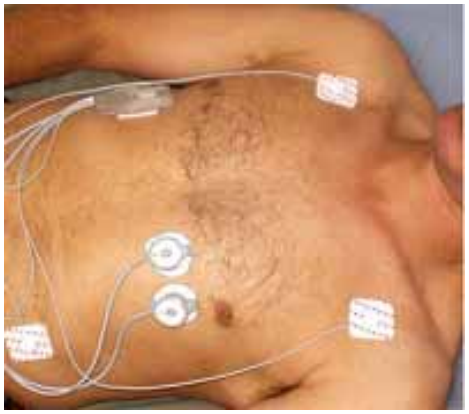
  Wireless DAQ for Biomedical Signal

- DAQNI

  DAQNI for National Instruments hardware

DAQ-TD1A





INOVISE - AUDICOR® AM
2 in x 3 in x 3/4 in, 1.5 oz
48 hours recording of beat-to-beat information:
- 3 ECG channels
- 2 heart sound channels
- Activity
- Posture
- Respiration
- Patient event trigger

TD1A - Specification

ECG

以兩個胸前電極記錄第二導程心電圖
放大倍率：250
解析：8-12位元
取樣率：500 Hz

EMG

以兩個臉部下巴電極記錄肌電圖
放大倍率：1000
解析：8-12位元
取樣率：500 Hz

EOG

以兩個臉部眼角電極記錄眼動圖
放大倍率：1000
解析：8-12位元
取樣率：500 Hz

EEG

以兩個頭上電極記錄腦電圖
放大倍率：2000
解析：8-12位元
取樣率：500 Hz

Temperature

以夾腋下體溫
解析度：8-12 位元
取樣率：500 Hz

Acceleration

以晶片型加速感測器偵測量X 、Y、 Z三度空間之加速度測量時無需任何電極或貼片

加速度偵測範圍：± 3 G
解析度：8-12位元
取樣率：500 Hz

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TD1A - Specification

儲存界面：

1. 以標準 MMC Micro 記憶卡儲存資料，並可經由轉接器由標準個人電腦讀取資料
2. 記憶容量：根據記憶卡容量大小

無線界面：

1. 無線發射頻道：2.4GHz-2.5GHz
2. 無線電發射功率：10 uW-1mW
3. 傳輸距離：2-10M
4. 類比訊號的輸入：最多8頻道，每個頻道8-12位元取樣，最高總取樣率為2.5kHz

其他 ：

1. 連續運作時間：24 小時以上，待機時間：3 個月以上
2. 總體積：5 cm x 3 cm x 1 cm 以下，重量11g 以下
3. 耗電量：全速運作耗電量為1mA-3mA，待機平均耗電20mA，電池：60mAH 或 110mAH 可充電鋰電池
4. 可輸出成EDF 檔，由睡眠分析系統(Embla A10)進行標準睡眠分析

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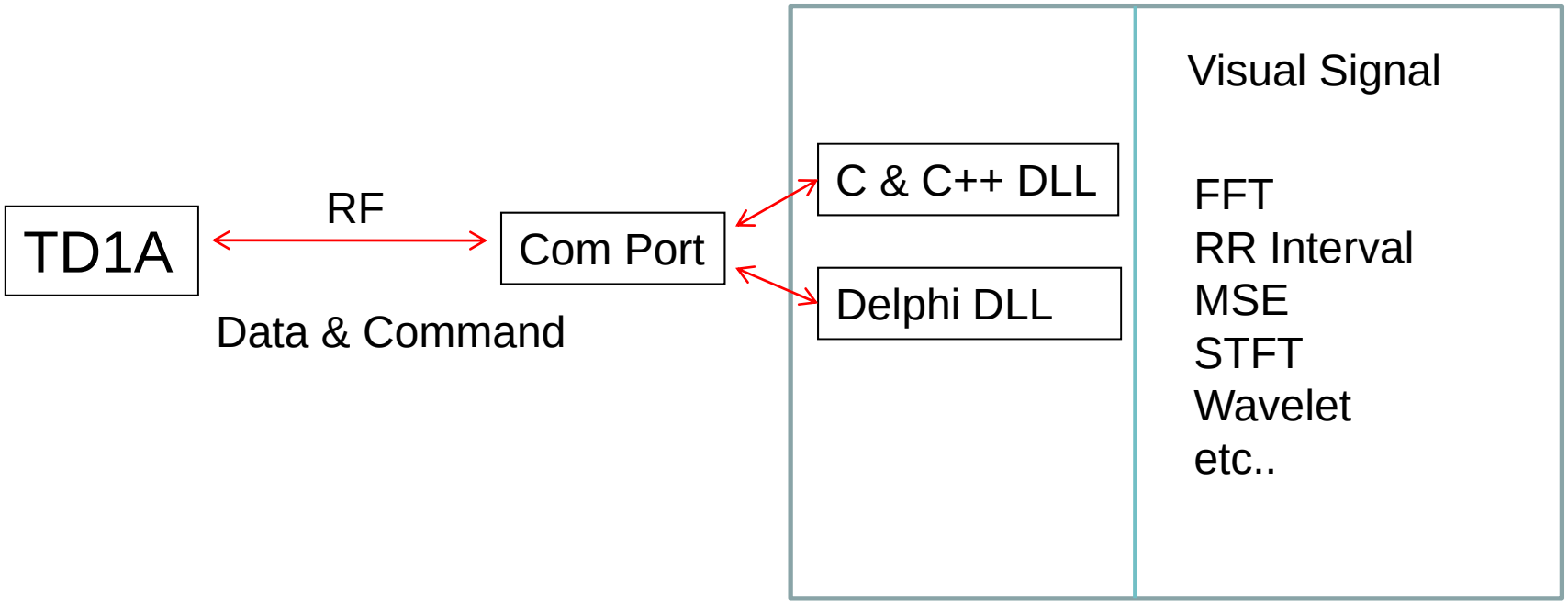
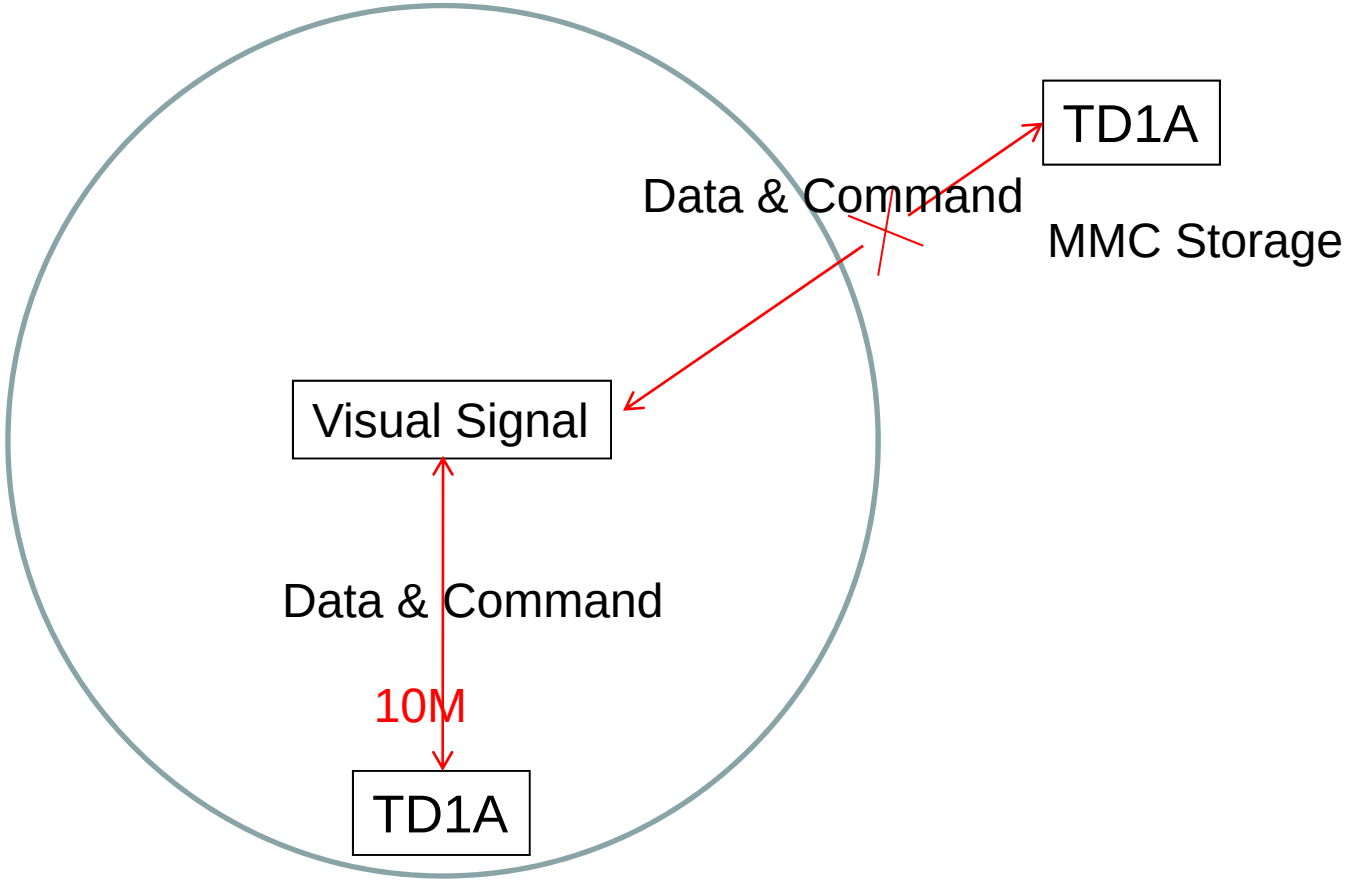
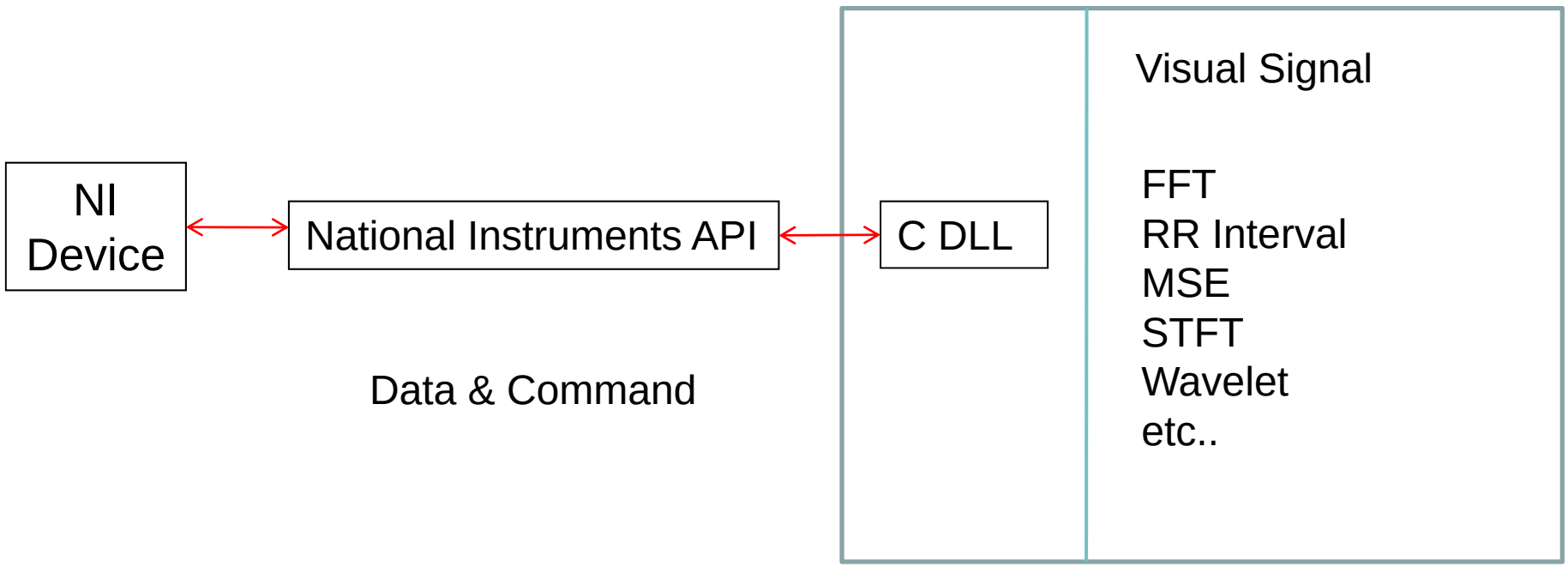
DAQ-TD1A


TD1A
RF
Com Port
Data & Command
C & C++ DLL
Delphi DLL
Visual Signal
FFT
RR Interval
MSE
STFT
Wavelet
etc..

DAQ-TD1A


TD1A
Data & Command
MMC Storage
Visual Signal
Data & Command
10M
TD1A

DAQ-NI


NI Device
National Instruments API
C DLL
Data & Command
Visual Signal
FFT
RR Interval
MSE
STFT
Wavelet
etc..

External Module

1. A Common XML Protocol Standard
2. User-Programmable Modules
    - Implemented as .NET assembly DLLs
    - Accessed from VS via a specialized module
    - Internally based on the XML protocol
3. Web Services
    - Implemented as server-side CGI programs
    - Accessed from VS via a specialized module
    - Internally base on the XML protocol

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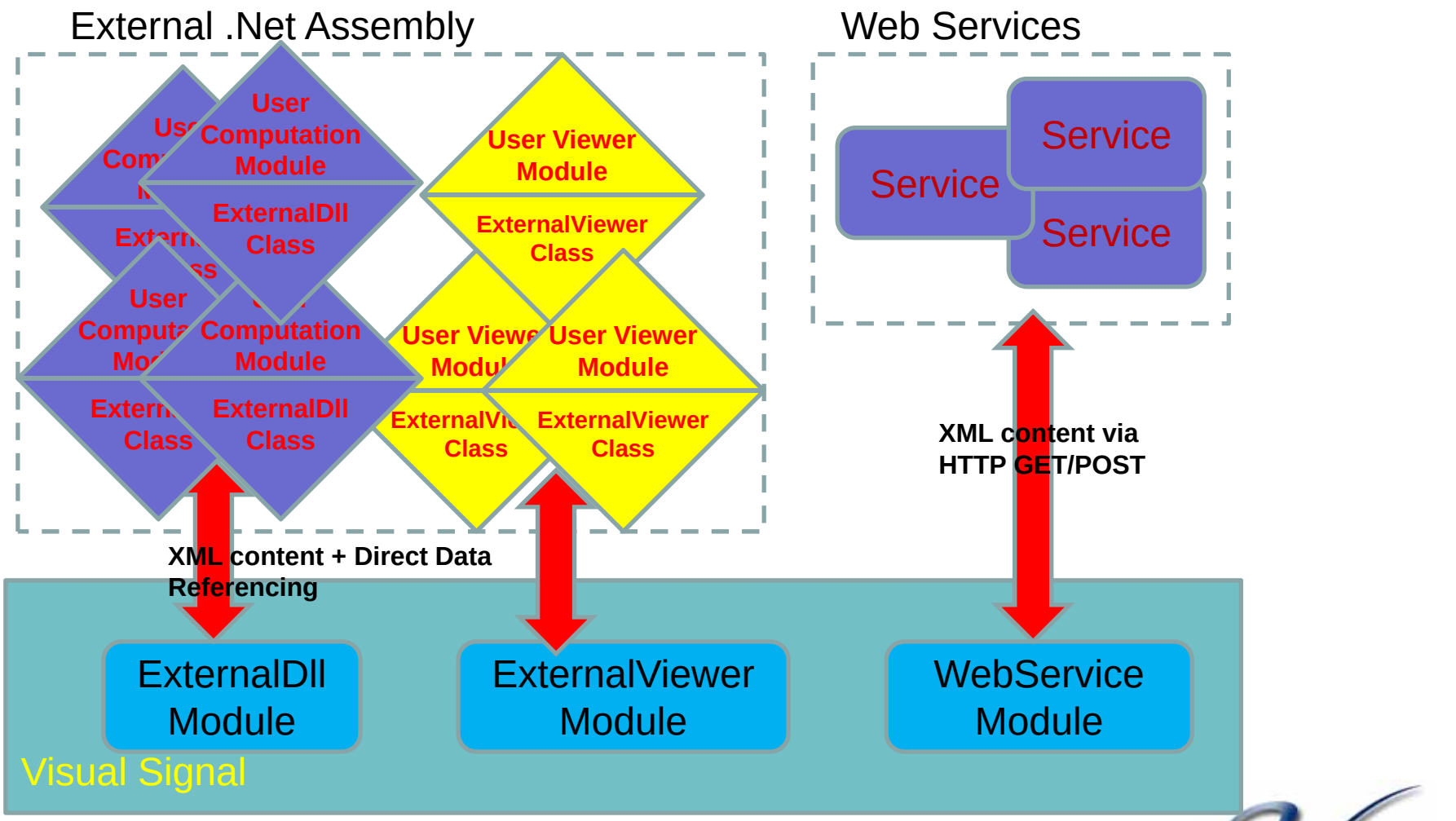
External .Net Assembly
User Computation Module
ExternalDll Class
User Viewer Module
ExternalViewer Class
Web Services
Service
Service
Service
XML content via HTTP GET/POST
XML content + Direct Data Referencing
ExternalDll Module
ExternalViewer Module
WebService Module
Visual Signal

Matrix Computation

- **Multi-Dimensional Input Data Manipulation**
  - Extract ROI, Vector, and Diagonal Vector (2D Matrix only)
- **Matrix Transform**
  - Inverse, Transpose
- **Matrix Operation**
  - Addition, Subtraction, Multiplication, Left & Right Division
- **Matrix Properties**
  - Condition Number, Eigenvalue Decomposition, etc……

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Thank You !

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