



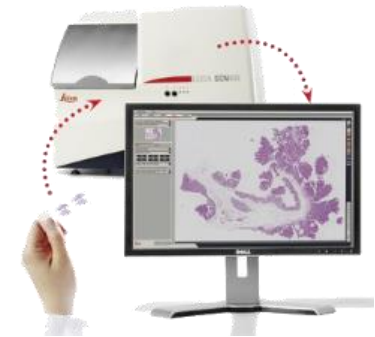
# VOXXL

Stream your medical images

6/23/2014

## 2D/3D IMAGING TECHNOLOGIES

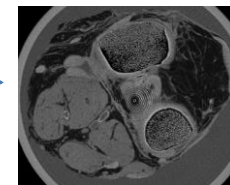
- **2 D - Digital pathology: 100 000 x 100 000 pixels (RGB)**
  - 30 GB
  - Ave : 15 GB
  - Max (Z-planes, 10 images) : 3,75 TB
  
- **3 D - Tomography : 4000 x 4000 x 4000 pixels (16 Bits)**
  - 128 GB
  - Ave : 16 GB
  - Max : >10 TB



*Image acquisition devices*

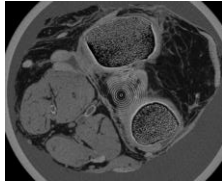


*Very High-Resolution volume*

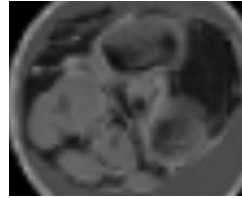


## 2D/3D IMAGING TECHNOLOGIES - ISSUES

*Very High-Resolution volume*



AND



*Data discarding method  
Loss of information*



*High-power workstation  
(>7000 €)*

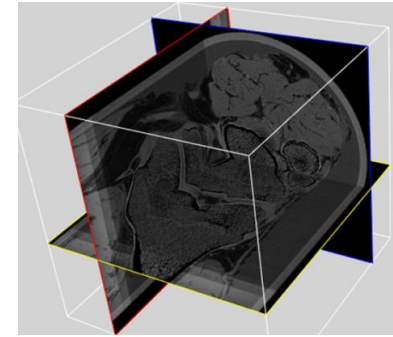
***Technologies to visualize and analyze have lagged behind***

### ■ ISSUES

- How to manage these data on standard computer ?
- How to remotely display and work on these data ?
- “Environment” – Few (R&D dept.) to no (industry) workstation

# VERY HIGH-RESOLUTION 3D IMAGE - CONTEXT

## ■ Synchrotrons & Visitors



### Context

### Limits

Very High Resolution Sensors -> 4000<sup>3</sup> pixels (1992)

Workstations **aren't powerful enough** to handle sensors maximum potential

Numerous daily experiments

**Insufficient** number of workstations

Collaborative work between different structures

**Very slow data transfer, critical issue** (FTP, Hard-drive disk, USB Flash drive....)

Centralized data storage

**Slow data transfer, major issue** (FTP, Hard-drive disk, USB Flash drive....)

Collaborative Research projects with hospitals, physicians

**No high performance workstation** in industrial environment

Close to industrials

**Hard to industrialize** – Expensive daily routine, requires organization, scheduling

Very high performance computers – Still have limits

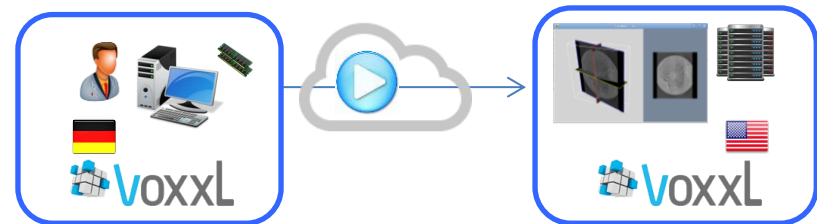
Scientists **don't push** their acquisitions devices **to their maximum potential**

## COMPANY - VOXXL

### ■ « *Stream your medical images* »

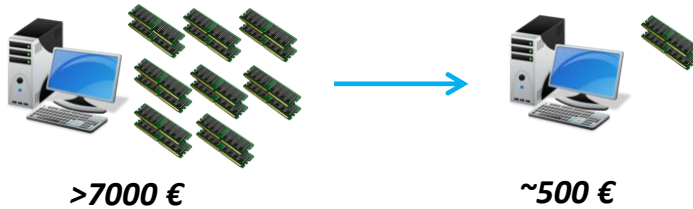
### ■ Product

- 3D massive image visualization and analysis software
  - « Lossless » compression – No “Data Loss”
  - Local visualization on any desktop and low specs. computer
  - Analysis of any volume, independent of station performance (Workstation, laptop, Tablet, smartphone...)
  - Faster interaction and analysis
  
- Cost Efficient – Use every computer
  - Any computer becomes a workstation
  
- Remote visualize any large 3D data
  - On standard bandwidth (3G, H, xDSL...)



# INNOVATION – VOXXL – “STREAM YOUR IMAGES”

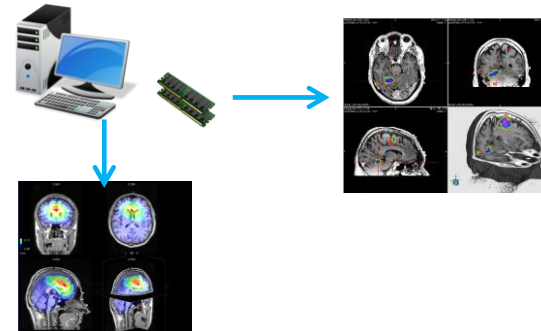
- **“Lossless” compression** – No Data loss – identical to native image
- **Visualize any volume on low tech. computer**



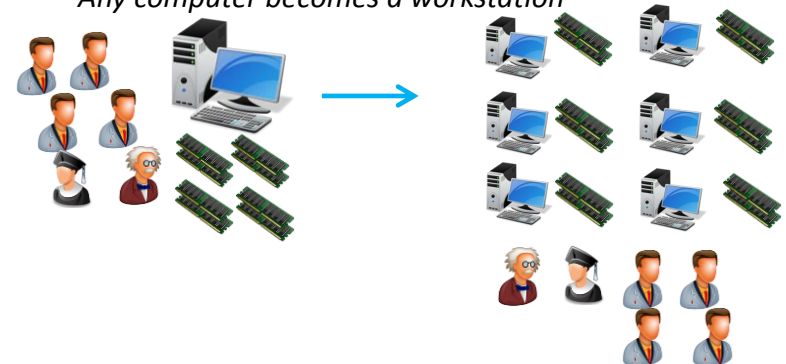
- **Streaming technology – Remote working**



- **Visualize, compare multiples images simultaneously on single computer**



- **Cost Efficient – Use every computer**  
Any computer becomes a workstation



Volume – 16 GB	Today	VOXXL
RAM usage	16 GB	0,006 GB
100 Mbit/s Bandwidth	Waiting time : 1280 sec	Waiting time : 0,5 sec



60 avenue Rockfeller, 69008 LYON  
FRANCE

Email : [axel.hars@voxxl.com](mailto:axel.hars@voxxl.com)

Phone : +33 652 240 528