SPAWAR
Systems Center
PACIFIC

A Conceptual Map of Open Source Software for Image Processing

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Overview

- Open Source is Everywhere! How does it all fit together?
- The low-down on OSSIM
- What's up with OpenCV
- Basic OSSIM Application
- Conclusion

Open Source is Everywhere! How does it all fit together?

- Open Source software is everywhere
  - Web Servers
  - Satellite Imaging
  - Secure Communications
  - File Storage/Transfer
  - Word Processing
  - Web Browsers
  - Operating Systems
  - Mathematical Software

Open Source Vocabulary

- Mailing List
- Repository
- Trunk/Branch
- Binary Distribution
- Source Distribution
- GPL/LGPL – Gnu Public License

Where does it all come from?

- Downloading/Managing the code
  - Svn
  - Git
  - Mercurial
  - Web browser

- Making projects using the code
  - Cmake
  - Qmake
  - By hand

Where does it all come from?

- Building the code
  - Nmake/Visual Studio Express
  - make/gcc

- Running the code
  - Visual Studio Debugger
  - Command Prompt/Batch Files

OSSIM / OpenCV Map

OSSIM
(Open Source Software Image Map)

Supports many different file formats

Allows us to open satellite images!!
Ortho- and Geo-rectify images

Basic image processing techniques

Works with very large images
Mosaic/Merge
Tile images ≥ TBs

C/C++ Library

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C/C++ Library

ImageLinker
Graphic User Interface (GUI)

Kind of like a photo shop for large images

New filters can be added

QT Library

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C/C++ Library

Image Linker

OSSIM Planet
Graphic User Interface (GUI)

Free 3D geospacial mapping software

KML , SHP, and OMS support

QT Library

OSSIM / OpenCV Map

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C/C++ Library

Image Linker

OSSIM Planet

OMAR

OSSIM Mapping ARchive

Geospacial archiving software

Display results based on location

Interactive viewing

WMS, KML, and SOAP support

Groovy on Grails

OSSIM / OpenCV Map

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C/C++ Library

Image Linker

OSSIM Planet

OMAR

OpenCV
(Open Computer Vision)

Supports only a few file formats

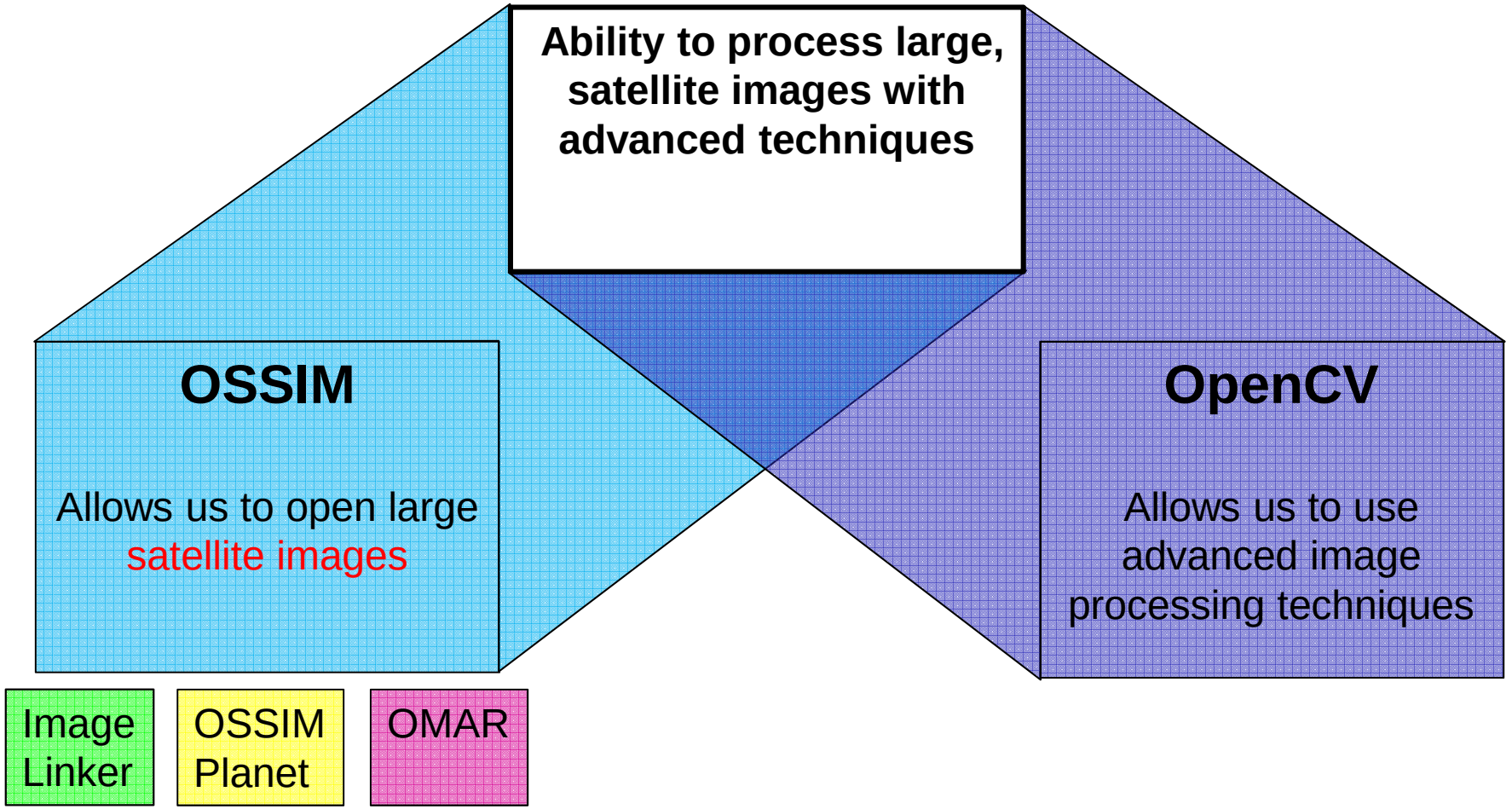
No GUI

Advanced image processing algorithms

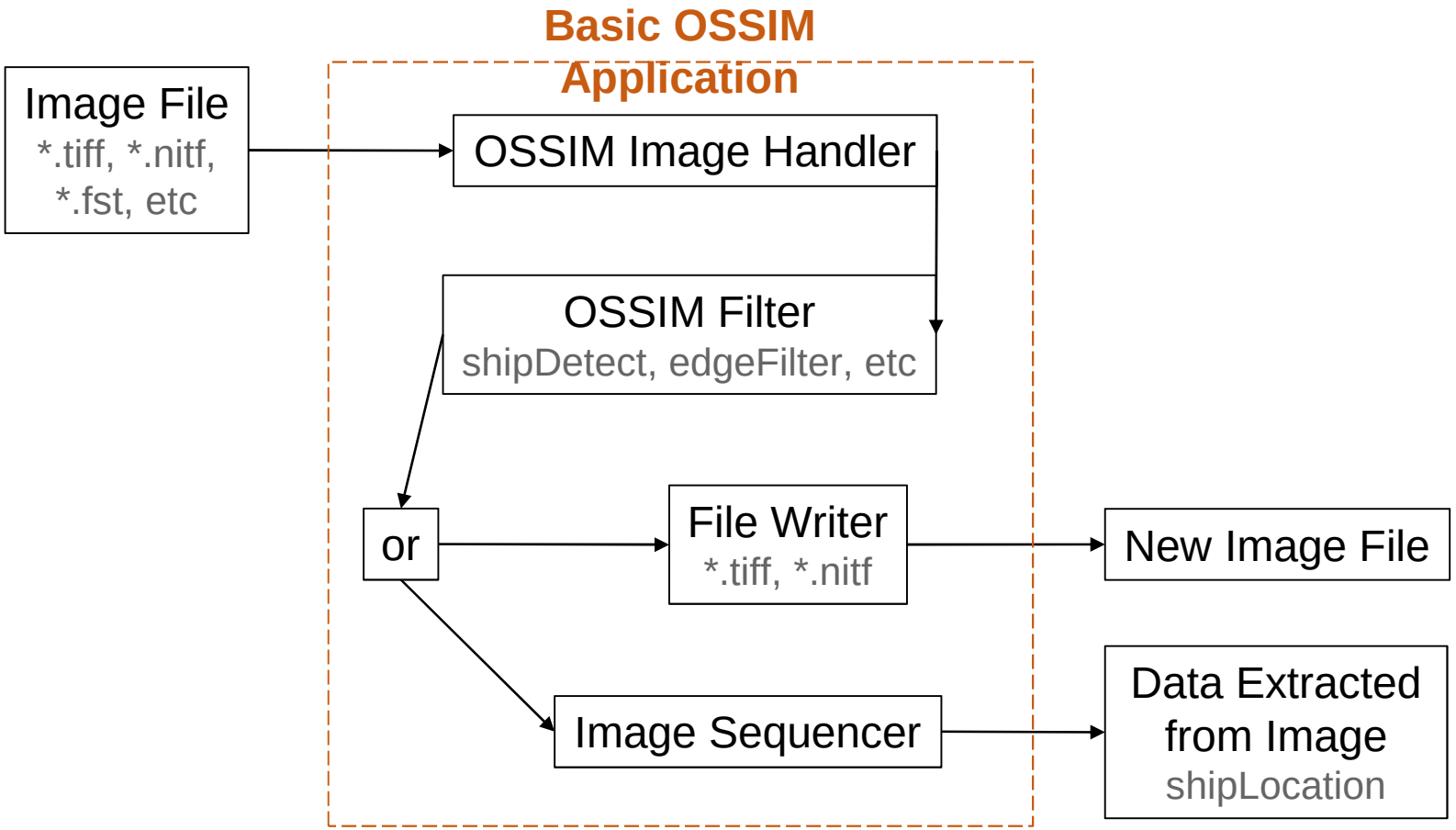
Works with motion and still imagery

C/C++ Library

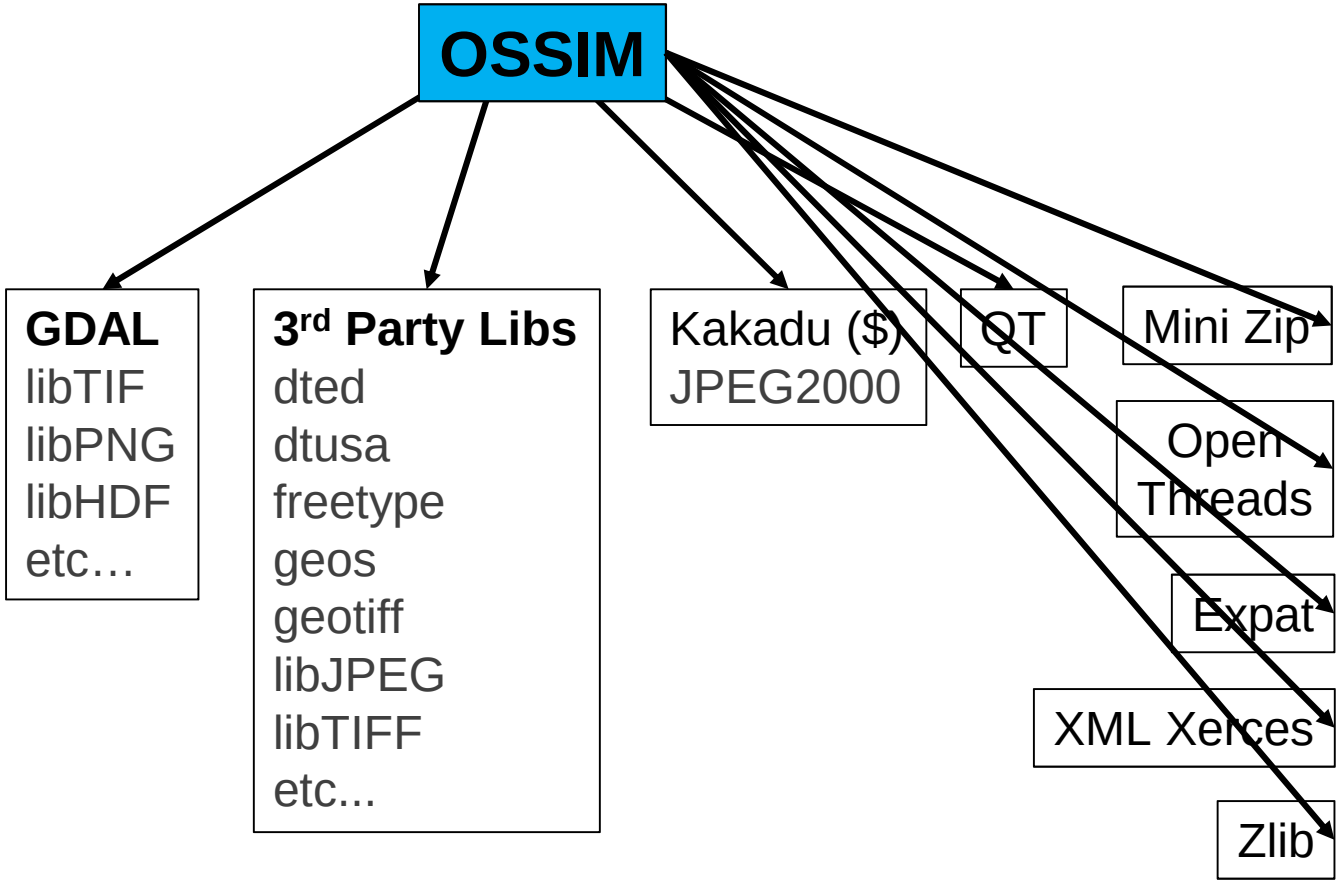
OSSIM / OpenCV Map



Basic OSSIM Application Map



Some OSSIM Dependencies



Conclusion

- Open Source is everywhere
- OSSIM allows us to work with satellite images
- OpenCV allows us to use advanced image processing algorithms
- ImageLinker, OSSIM Planet, and OMAR use OSSIM to power applications for images