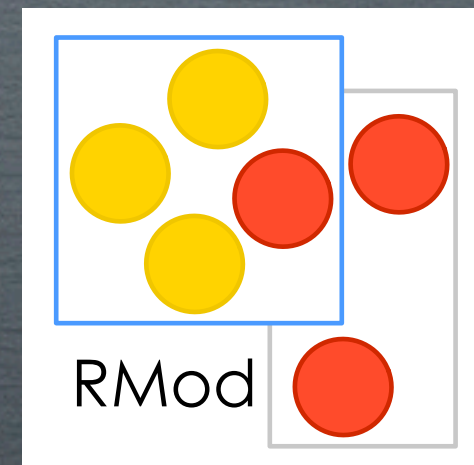


VISUALIZING OBJECTS AND MEMORY USAGE

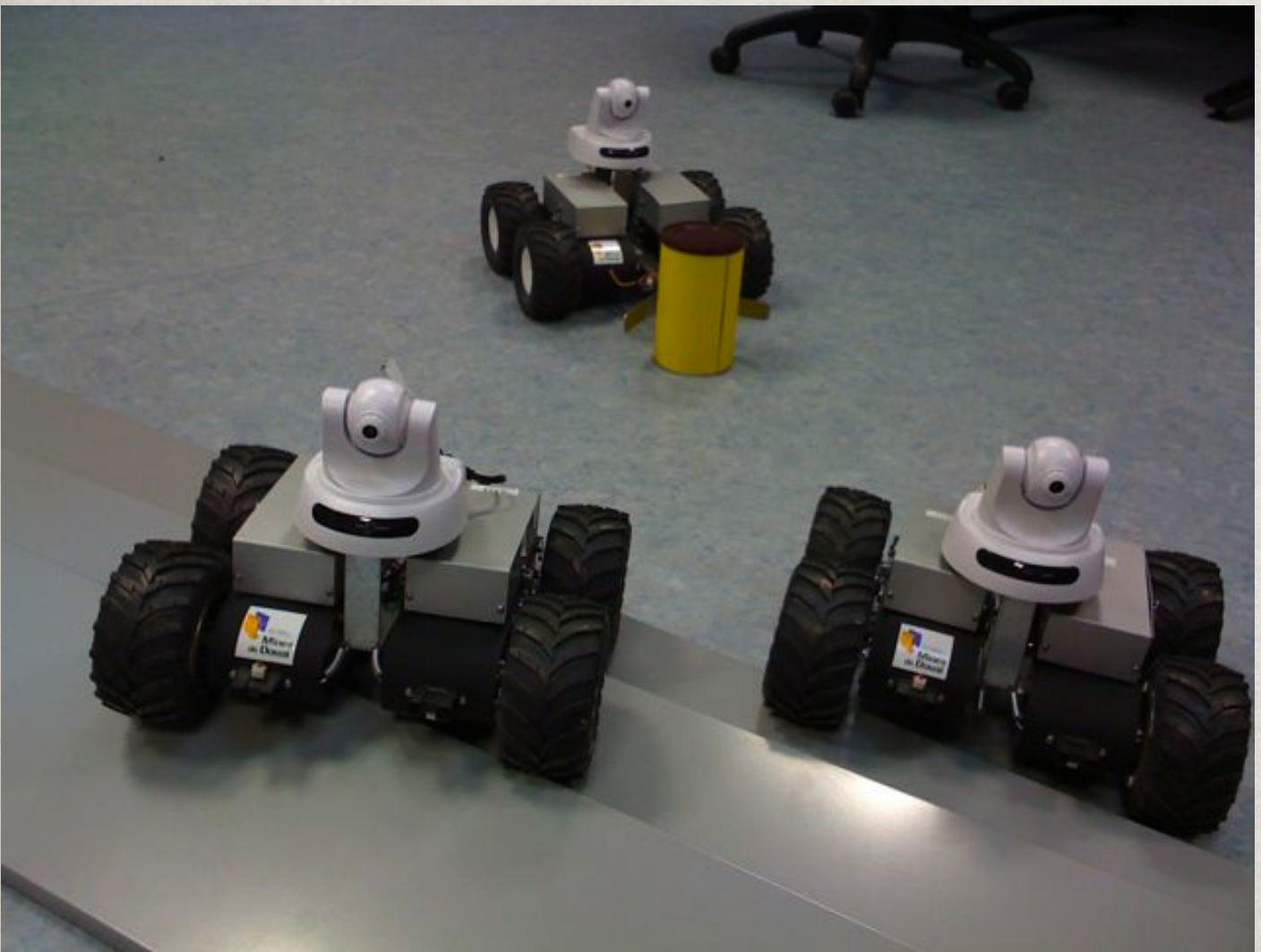
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ET EN AUTOMATIQUE



THE CONTEXT

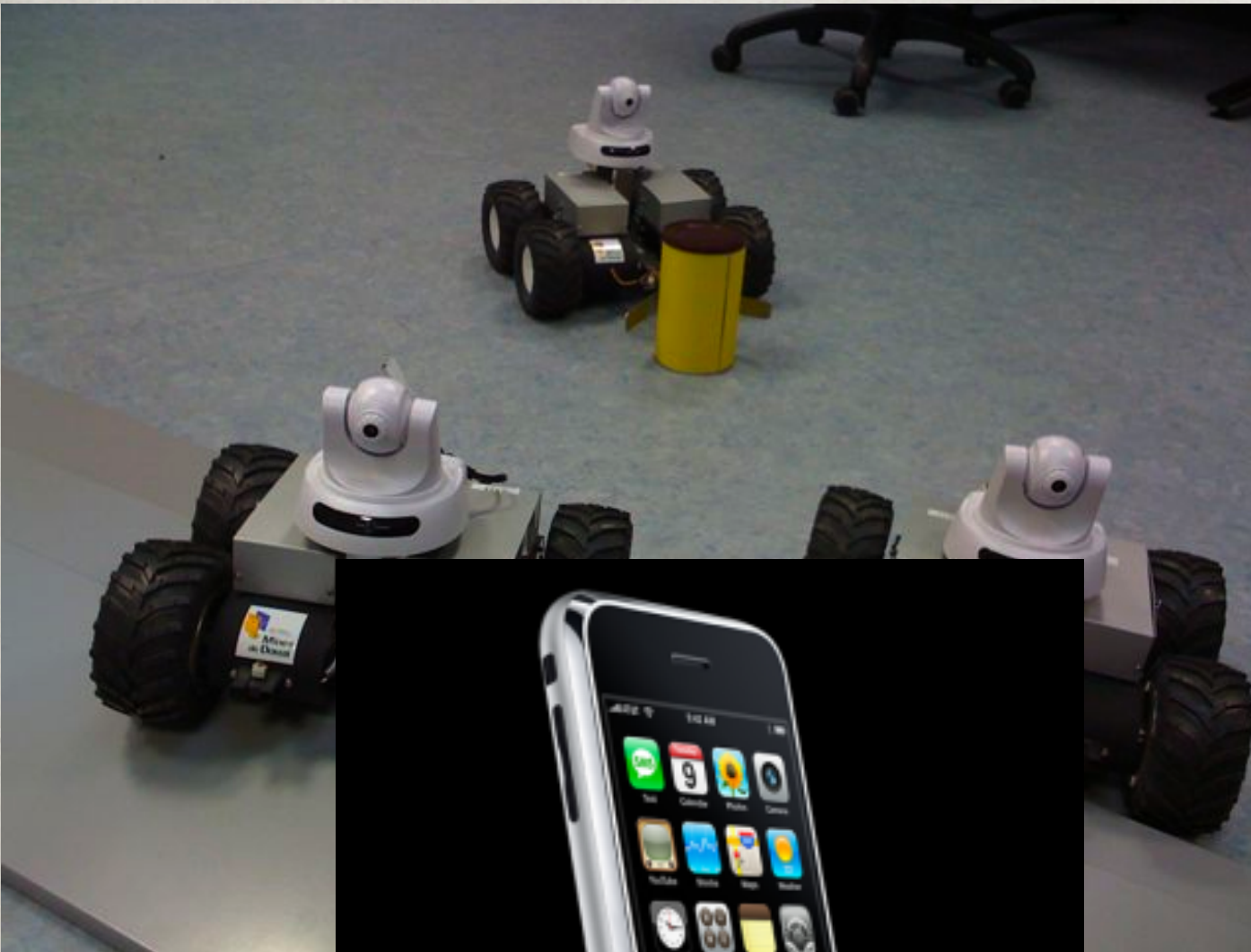
THE CONTEXT



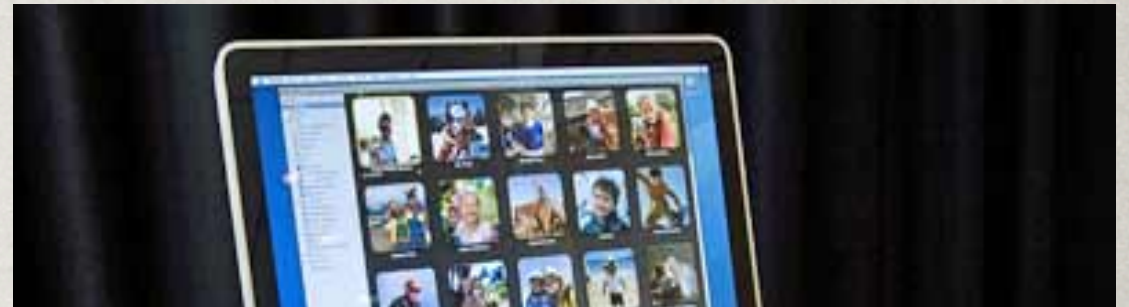
THE CONTEXT



THE CONTEXT



THE CONTEXT





☼ 1st step: UNDERSTAND.

☼ To understand: VISUALIZATIONS.

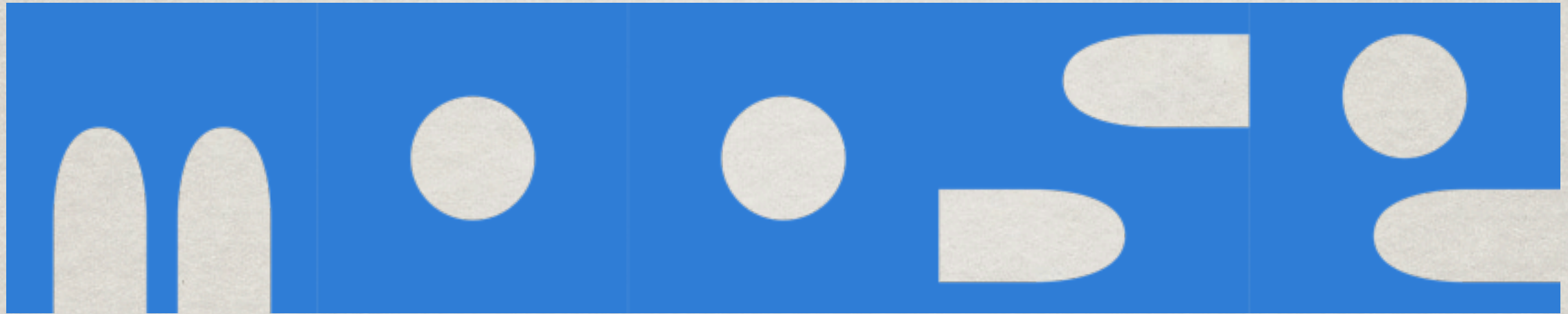
PROBLEM

- ✻ How to visualize objects and memory usage.
- ✻ Special treatment for classes, methods and packages.
- ✻ **Take into account objects usage.**

Regarding related work...
no one solves the problem of
taking into account objects usage.

OUR SOLUTION

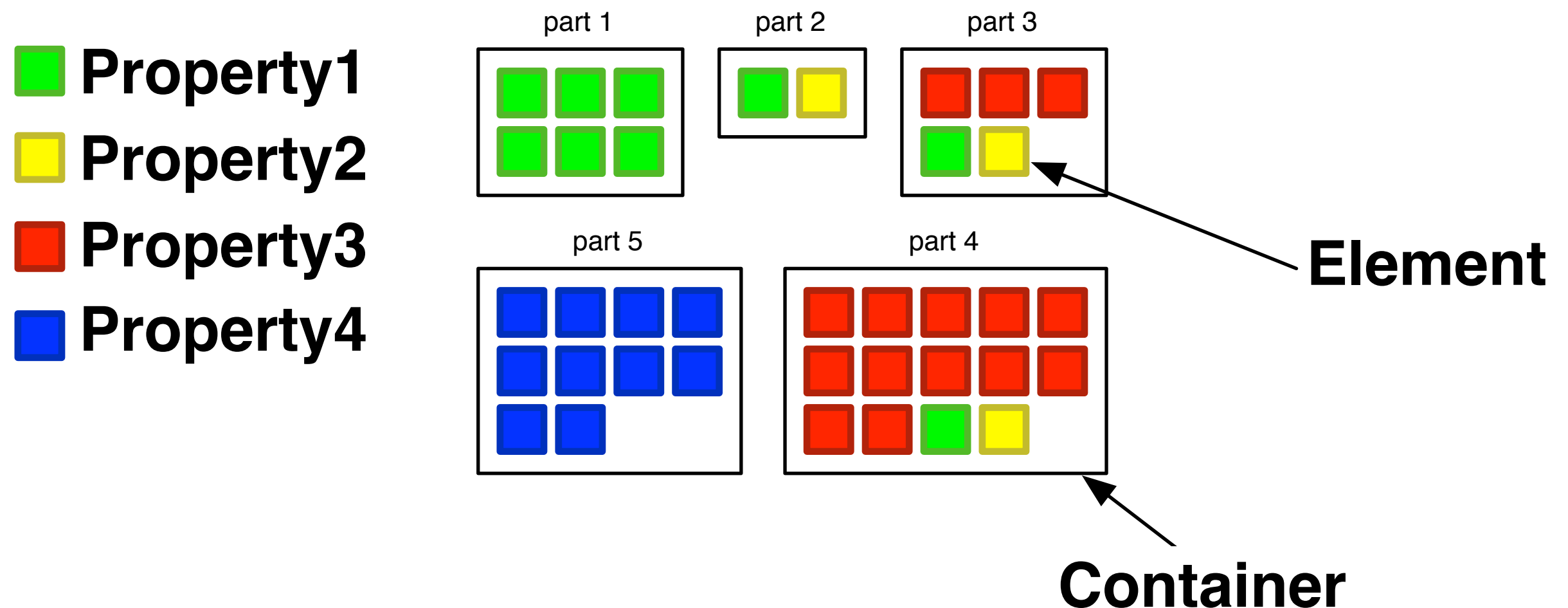
- ✱ Trace objects usage.
- ✱ Use `DistributionMaps` to visualize the results.



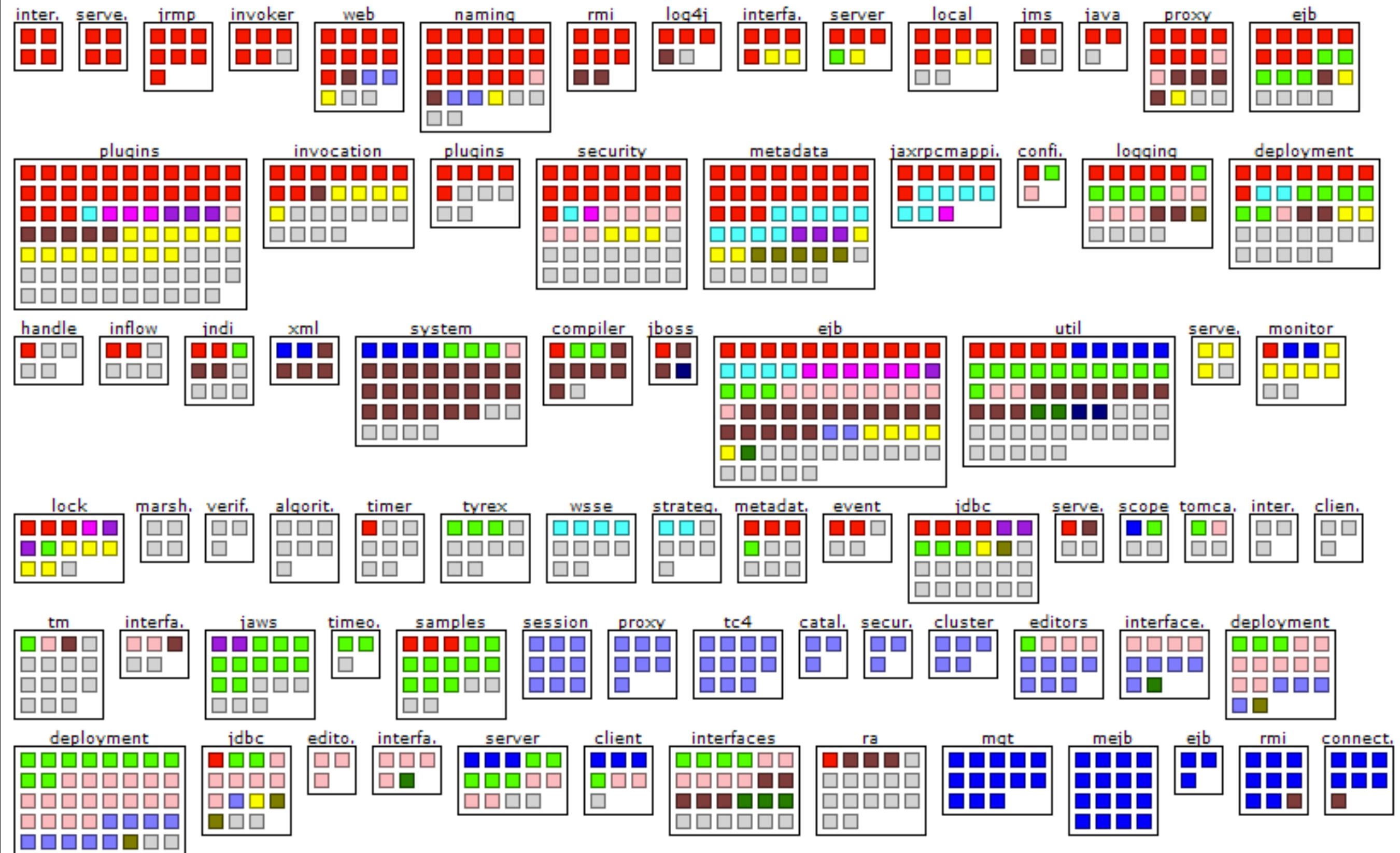
Moose is a platform for
software and data analysis

DISTRIBUTIONMAP

“Distribution Map visualizes parts of a system and shows how properties of the part elements spread over the initial parts.”



JBOSS EXAMPLE



USED OBJECT MAPS

Distribution Maps that take into account objects and memory usage

HOW TO USE THEM?

1. Start the analysis.
2. Run the scenario to analyze.
3. Stop the analysis.
4. Visualize using DistributionMaps.

SHOWTIME



Saturday, November 13, 2010

TRACING OBJECTS USAGE

- ✻ Usage bit in the Object Header (Virtual Machine).
- ✻ Define “**when** an objects is marked as used?”.
- ✻ Modify VM to mark objects when used.

WHEN AN OBJECTS IS MARKED AS USED?

- ✱ Quick answer: when it receives a message.
- ✱ When the VM directly use it.
- ✱ When used by special VM bytecodes (`#class`, `#==`, etc).

SHOWTIME 2



POSSIBLE USES

- ✻ When building minimal images.
- ✻ Virtual memory implementations.
- ✻ Detect bad smells or possible overuse of memory.
- ✻ Detect opportunities of refactorings.

CONCLUSIONS AND FUTURE WORK

- ☒ Use Distribution Maps and distinguish between used and unused instances.
- ☒ Useful to analyze the system and to know which objects are used in different scenarios.
- ☐ DistributionMap comparator.

Thanks!

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