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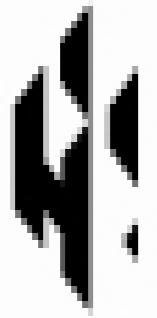
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# USING AUTOMATED PLANNING TO ENABLE AUTONOMIC PROPERTIES IN COMPUTER SYSTEMS

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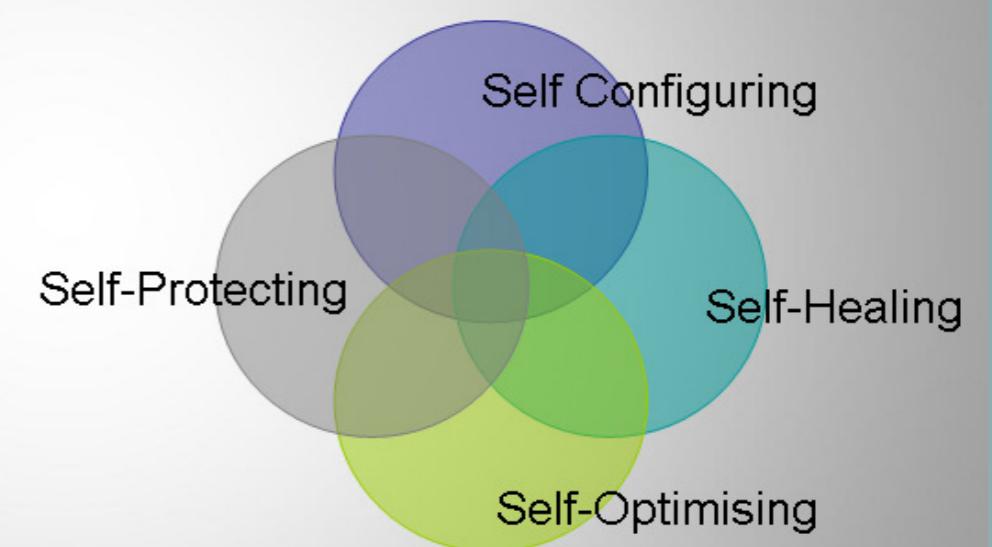
## RESEARCH QUESTION

- In today's complex heterogeneous systems, autonomic properties (self-management, self-maintenance, self protection) are very desirable.
- Typically, such autonomic properties implemented in systems tend to exhibit "reactive" rather than "deliberative" behaviour.
- In many applications (For example - AUVs, Traffic Control) there is a need for systems that can sense, interpret and \*\*deliberate\*\* with knowledge of their actions, goals and environment in order to produce plans to meet their service level requirements

## SELF\*

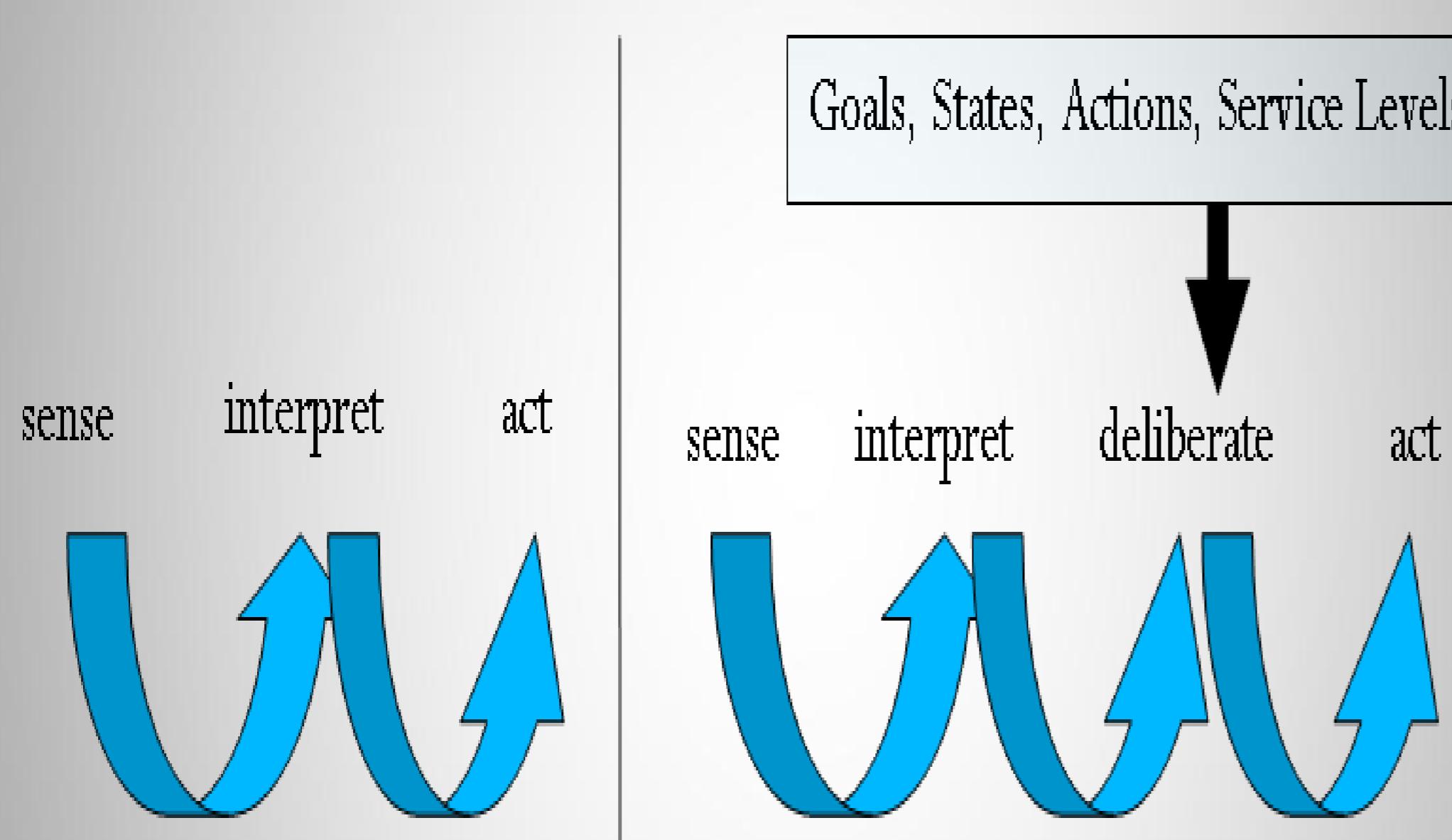
### Characteristics of AC

- Self-Configuring
- Self-Healing
- Self-Optimising and
- Self-Protecting



## The Role of APS...

*Road traffic support systems embodying AI techniques tend to be "reactive" rather than "deliberative" (aka self-aware)*



*...great potential for exploitation of deliberative AI via the integration of recent advances in APS*

## AIM

- This project aims to perform ground-breaking research in order to show the potential of Automated Planning technology in embodying systems with self-management.
- We aim to take traditional control system architecture, situated in the area of traffic control, and embed it with deliberative planning components.

## METHODOLOGY

- We will evaluate it by comparing its behaviour to a traditional control system, and assessing the effort and challenges required to embody such symbolic reasoning within a real time environment.
- We explore the use and potential exploitation of deliberative AI techniques, in particular recent advances in Automated Planning.

## RESEARCH SIGNIFICANCE

- Autonomic control systems are an important class of control systems, because of the desirable properties that they offer: self-manage, self-configure, self-protect and self-optimize.
- Creating generic technology that enables control systems to automatically reason with knowledge of their controls, in order to generate plans and schedules to manage themselves, would be a major breakthrough in the realisation of autonomic properties in such systems.