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USING AUTOMATED PLANNING TO ENABLE AUTONOMIC PROPERTIES IN COMPUTER SYSTEMS

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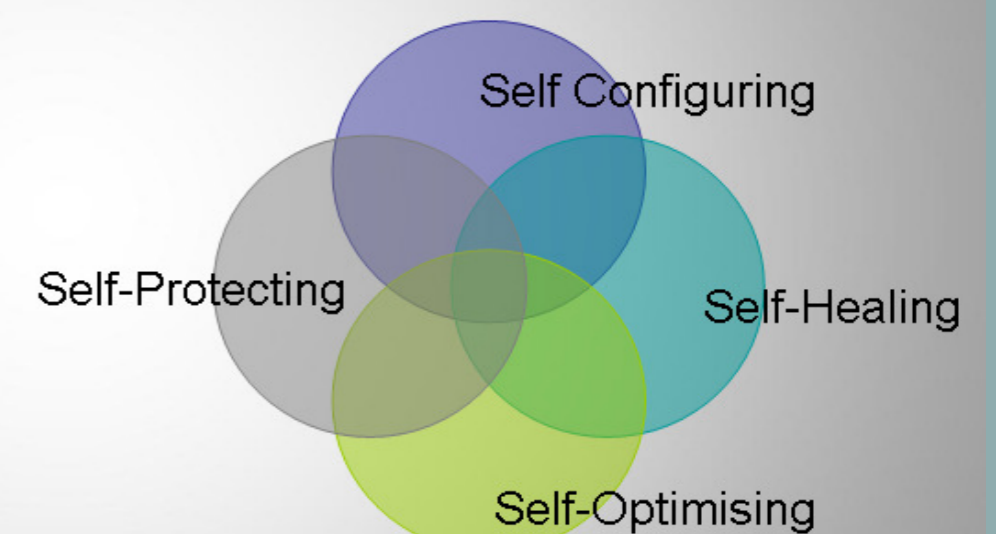
RESEARCH QUESTION

- 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*

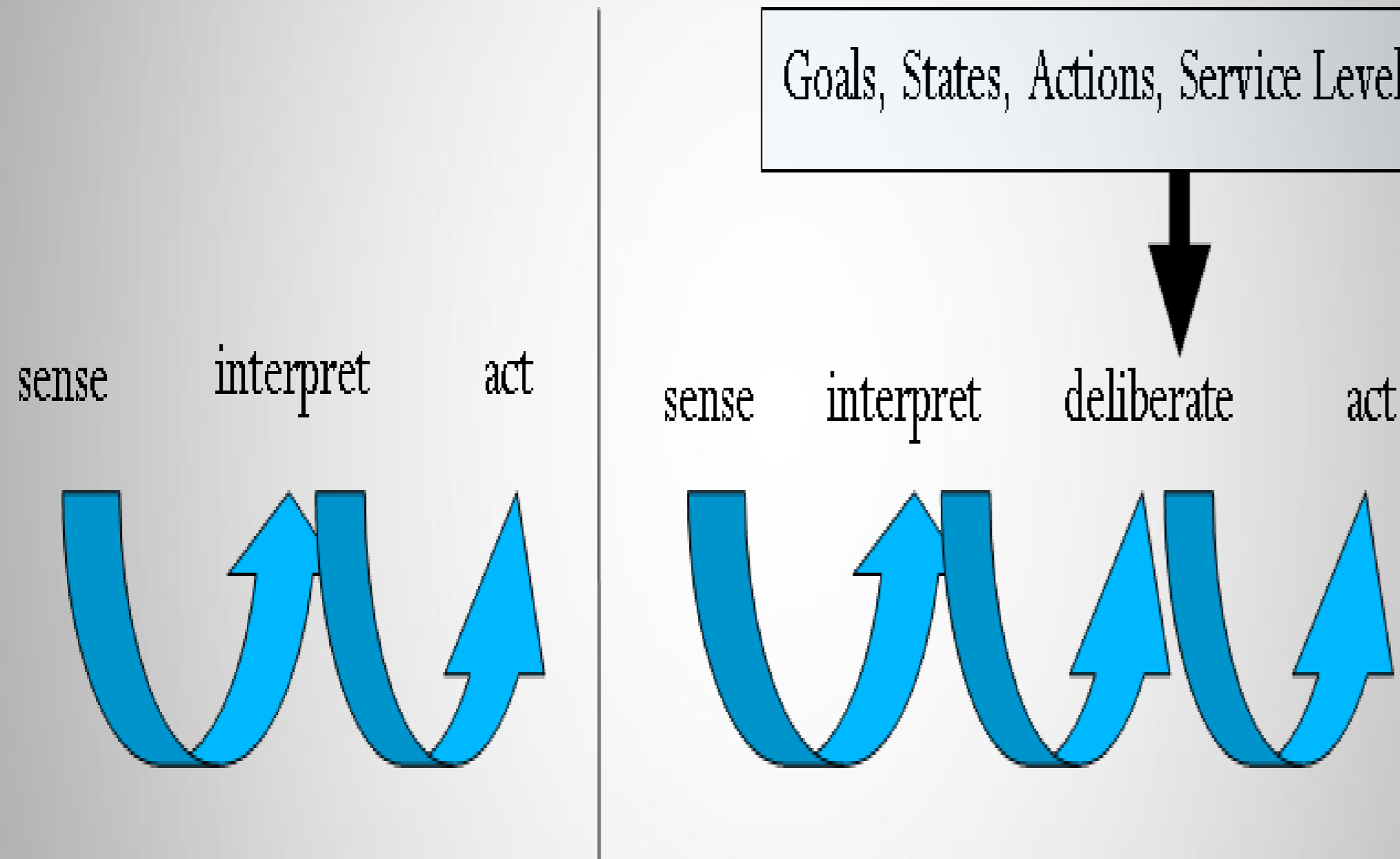
Characteristics of AC

- 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-optimise.
- 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.