Using Automated Planning in data centers fault tolerance systems

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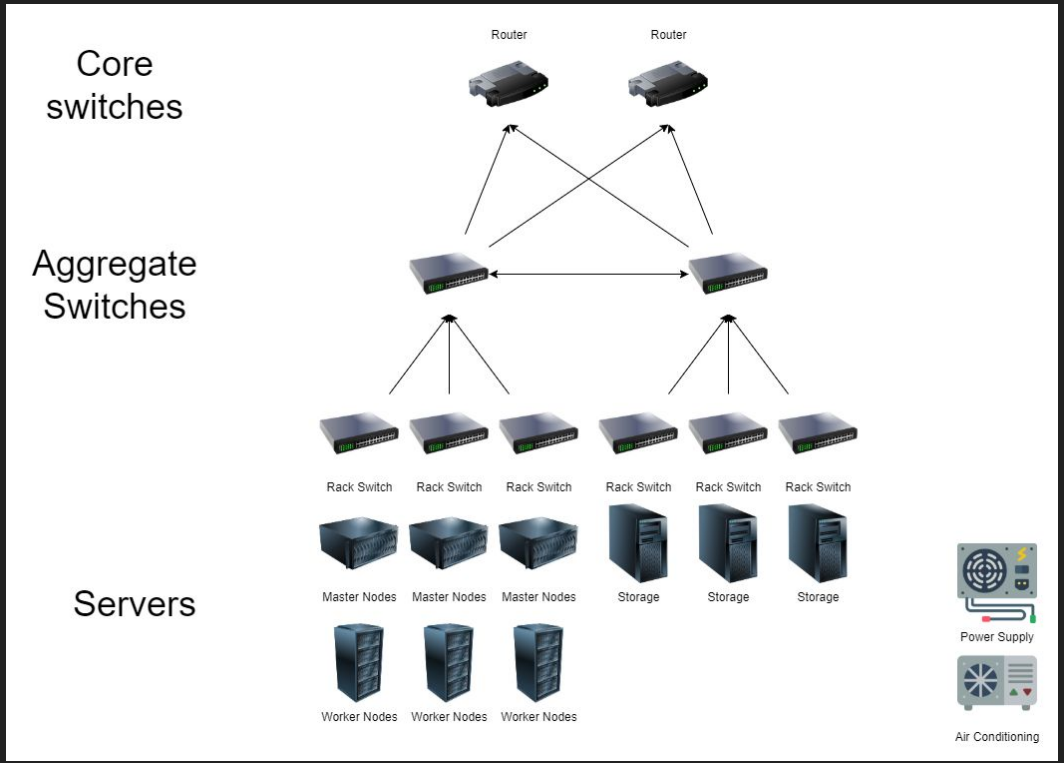
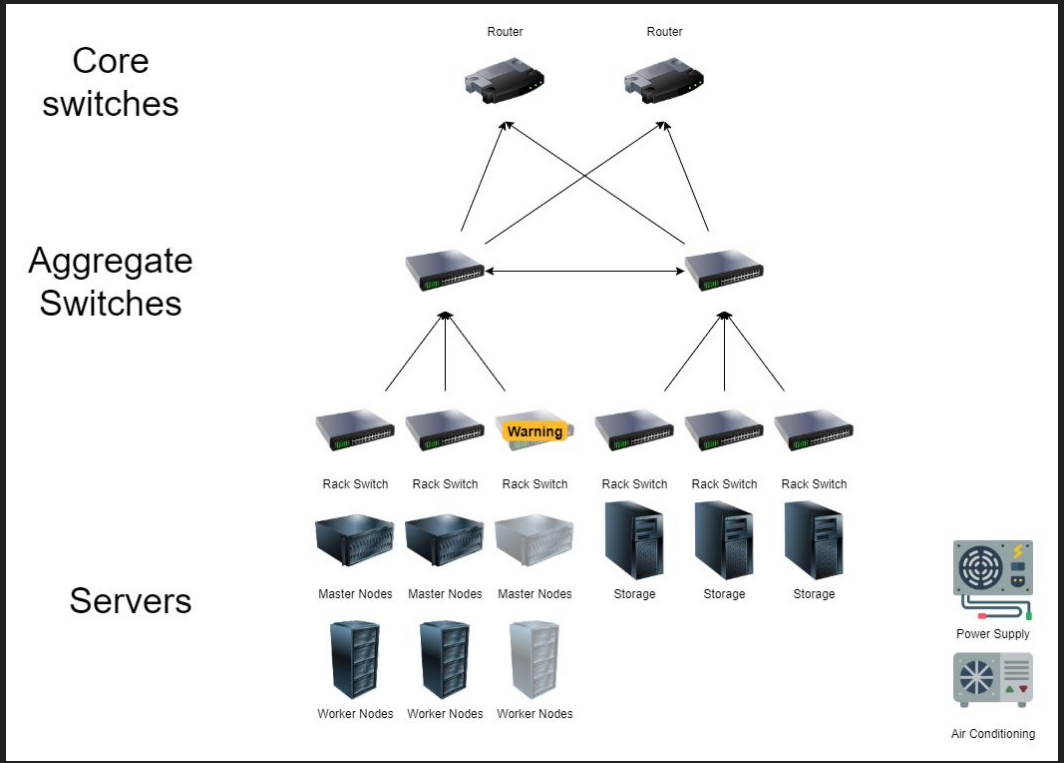
How does a data center works?



The impact of a failure



Our goals

- Design this domain in PDDL with some sample problems.
- Develop a planner for this use case.
- Ensure good experimental design.

PDDL domain

PDDL domain will work as a data center.

All objects that we saw later will be defined in our PDDL domain.

Possible actions (troubleshooting steps) will be defined as well.

PDDL problem

We will define some sample problems that frequently raise failures in data centers.

- The goal is execute all instructions;

In the real world, engineers will need to update problem definitions (PDDL) and create new ones when necessary, similar to what happens with a Knowledge Base.

Project Management

Sprint	Start	End
1	May 24, 2021	May 30, 2021
2	May 31, 2021	June 6, 2021
3	June 7, 2021	June 13, 2021
4	June 14, 2021	June 20, 2021
5	June 21, 2021	June 27, 2021

Sprint 1 and 2: Develop domain and problems using PDDL.

Sprint 3 and 4: Develop an automated planner and evaluate the results.

Sprint 5: Revision and paper development.

Conclusion

We aim to investigate the possibility of using automated planning to help IT engineers in troubleshooting steps and the application of previously defined workarounds.

We are exploring automated planning in a domain with few researches. We believe that our proposed method can open new possibilities to further research in how automated planning can be applied in IT operations

Questions? :)