



CERN
openlab

Moving Oracle ORDS Deployment to GitOps

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14.09.2022

A BRIEF INTRODUCTION

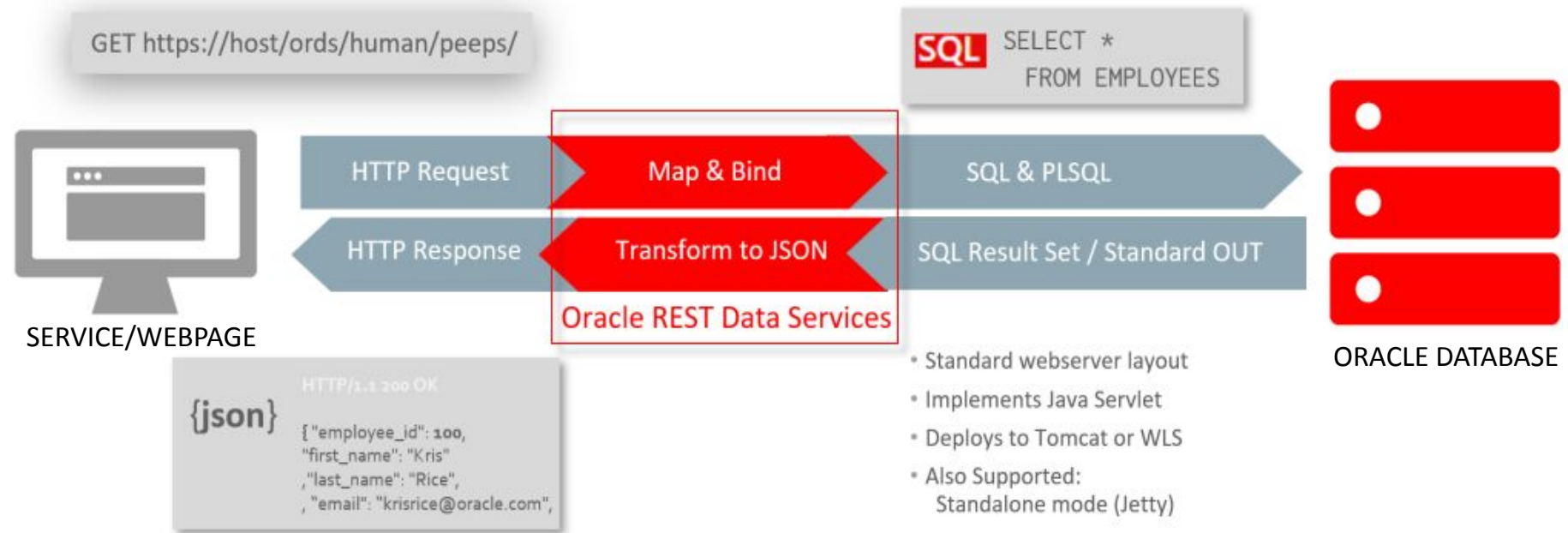
ORACLE®

- Aryan, recent graduate from University of Delhi, India.
- IT-PW-ARW Section (IT Platforms & Workflows - Application & Reusable Workflows) at CERN.
- JEEDY Team - Uses Kubernetes based services for deployment & maintenance of CERN developed Java Applications.
- Applications include EDH, EDMS, CERN Phonebook.



CONTEXT | ORDS

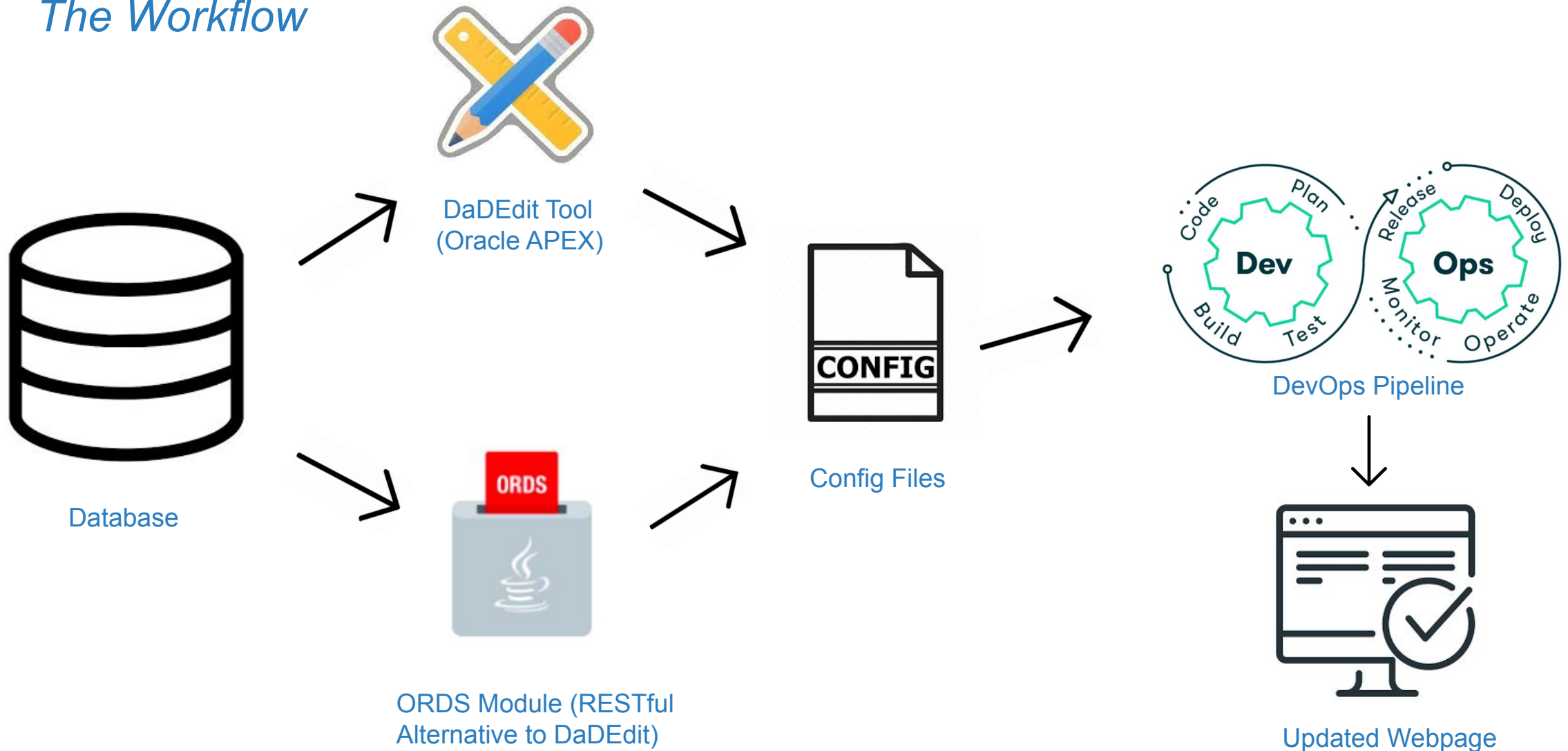
Oracle Rest Data Services



ORDS bridges the gap between HTTPS Webpages (Services) and Oracle Databases.^[1]

CURRENT ARCHITECTURE

The Workflow



THE PROBLEM

Customizing Service Settings.

ORDS Applications are configured through DaDEdit or ORDS module.

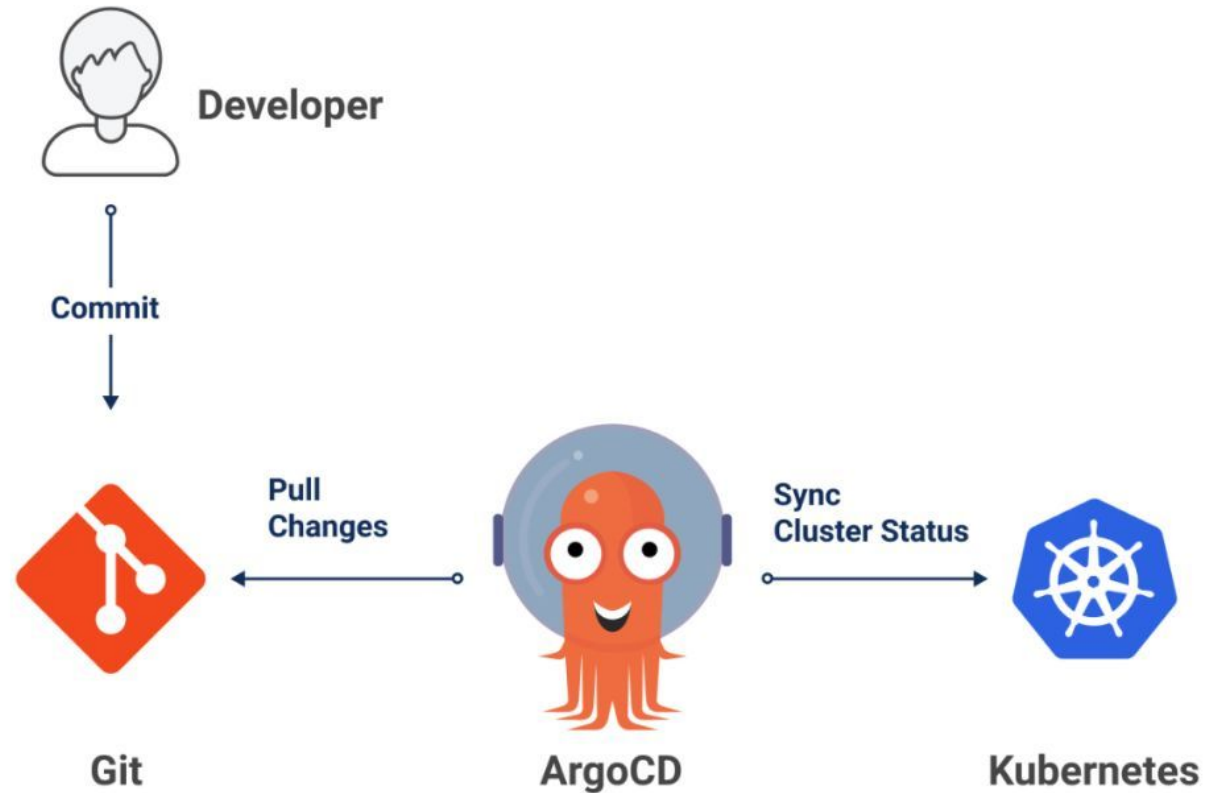
But customization of settings is only possible through DaDEdit.

- Ancient.
- Highly Inconvenient.
- Prone to mistakes by User.

```
{
  "result": [
    {
      "id": 404,
      "name": "CERN_SECRET_SERVICE",
      "context_root": "/found",
      "type": "SSO",
      "clean": "N",
      "frozen": "N",
      "cluster_name": null,
      "entity": null,
      "frontend_entity": null,
      "application_name": "lhc",
      "redeploy": "N",
      "config_refresh": "N",
      "ords_version": "127.0.0.1",
      "p1": null,
      "p2": null,
      "p3": null,
      "p4": null,
      "p5": "true",
      "p6": "5",
      "p7": "20",
      "p8": "true",
      "p9": null,
      "p10": "true"
    }
  ]
}
```

Dummy representation of JSON Data for a Service

CONTEXT | GITOPS



Typical GitOps Workflow^[2]

THE SOLUTION | PHASE I

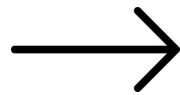
Migrate to Local → Local to GitOps!

Phase out Database use :

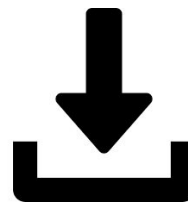
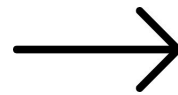
- Redesign configuration backend from Oracle DB to local JSON data in ORDS module.
- Verify accuracy of config files generation using downloaded JSON data.



Oracle Database



ORDS Module



Download JSON Data



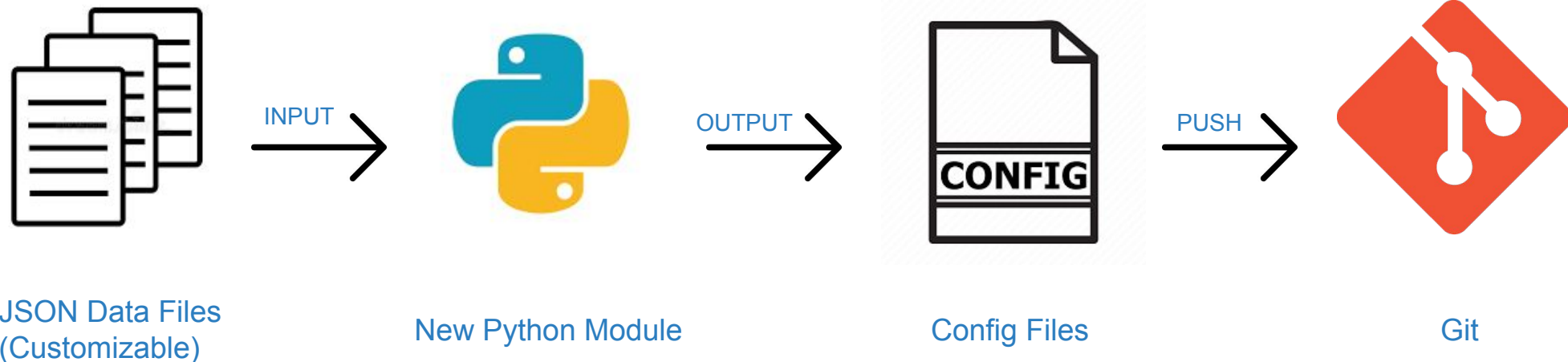
JSON Data Files

THE SOLUTION | PHASE II

Migrate to Local → Local to GitOps!

Replace DaDEdit Tool :

- Create new Module to generate configuration files through local data
 - Customization possible by editing local data files
 - No usage of Database or DaDEdit.
- The newly generated config files can then be stored in a version control system such as Git.



Summary

Promising Proof of Concept to adopt GitOps.

- Implemented functionalities in existing ORDS module to allow download of relevant JSON data files - edit the files locally - and generate new config files using edited files (without using DaDEdit Tool).
- Implemented a new production level Python module to transfer ORDS customization from DaDEdit to local filesystem without any usage of database. Generated Config files to be stored in Git repository.
- Phase III (Future) : Integrate Current Solution with GitOps tools like ArgoCD.



QUESTIONS?

References

[1] : ORDS <https://db-blog.web.cern.ch/blog/luis-rodriquez-fernandez/2020-01-building-and-documenting-rest-apis-ords>

[2] : GitOps Workflow <https://openkruise.io/docs/v1.1/best-practices/gitops-with-kruise/>