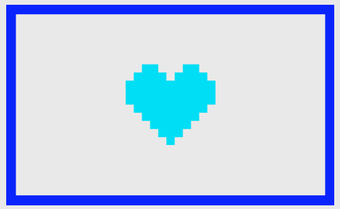
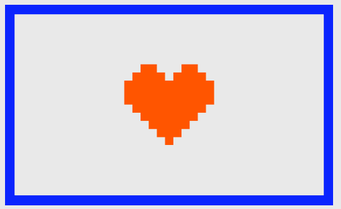




LEVERAGING GITOPS FOR GNOME DEVELOPMENT: STREAMLINING CONFIGURATION AND DEPLOYMENT ON UBUNTU

Meet the speakers

ADITYA D.

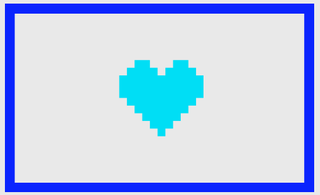
SAUMILI DUTTA

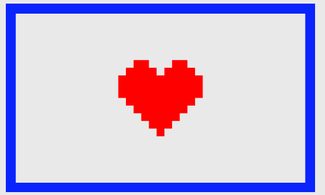
AGENDA

- Understanding GitOps and its relevance.
- Exploring GNOME development challenges.
- Applying GitOps for GNOME on Ubuntu.
- Real-world examples and future trends.

What is GitOps?

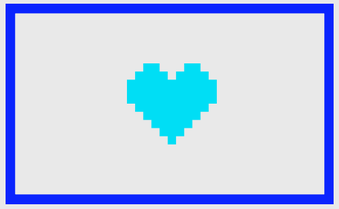
- GitOps uses Git repositories for operational framework.
- Acts as a single source of truth for infrastructure.
- Ensures all deployment needs are versioned.
- Promotes consistent state across various environments.
- Relies on declarative infrastructure and applications.

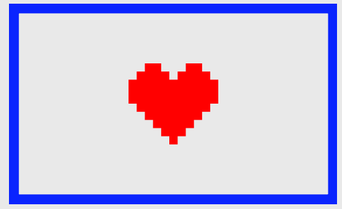




Why GitOps Matters in Development?

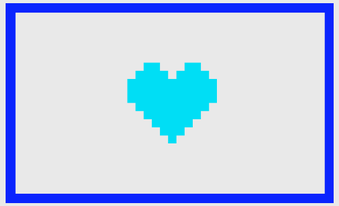
- GitOps enhances collaboration in software development.
- Automation is improved through GitOps practices.
- Manual interventions are reduced with GitOps.
- Deployment speeds increase using GitOps methodologies.
- GitOps minimizes errors for reliable software delivery.

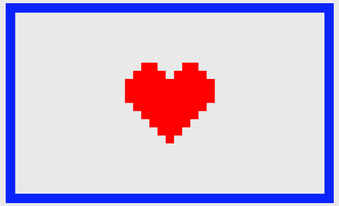




Understanding GNOME Development

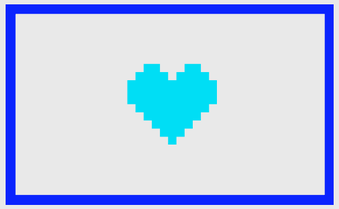
- GNOME is a popular Linux desktop environment.
- Widely used in Ubuntu for user-friendliness.
- Offers seamless, intuitive user experience.
- Integrates with GitOps for enhanced development.
- Streamlines deployment processes effectively.

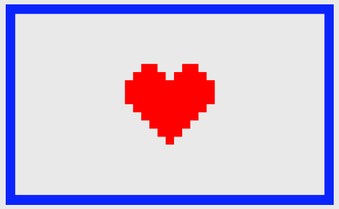


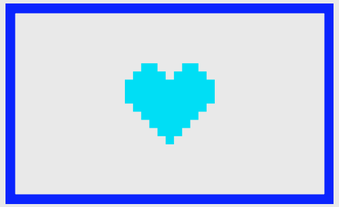


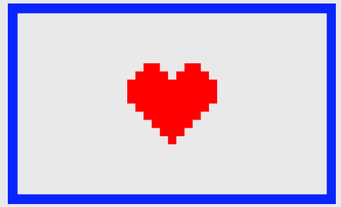
Challenges in Traditional GNOME Deployment

- Manual setup is time-consuming for IT staff.
- Human error risks system vulnerabilities and downtime.
- Inconsistent deployments cause unexpected behavior and issues.
- Lack of automation leads to significant resource demands.
- Automation improves efficiency, consistency, and productivity.

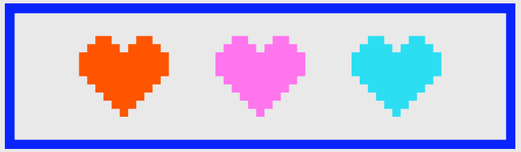


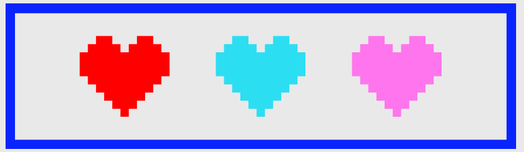






ANY QUESTIONS?





WHAT IS GITOPS PRIMARILY FOCUSED ON?

a. Utilizing Git repositories as the single source of truth

b. Replacing version control with manual updates

c. Managing server infrastructure without automation

d. Using Kubernetes as the sole deployment tool

WHAT IS GITOPS PRIMARILY FOCUSED ON?

a. Utilizing Git repositories as the single source of truth

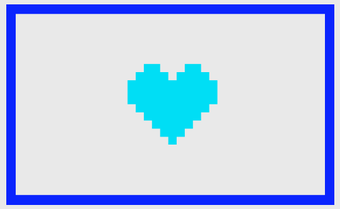
b. Replacing version control with manual updates

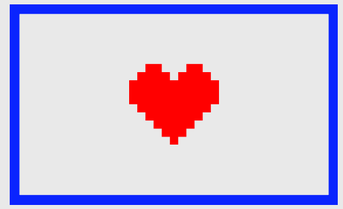
c. Managing server infrastructure without automation

d. Using Kubernetes as the sole deployment tool

Configuration as Code

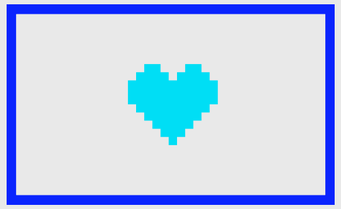
- Configuration as Code manages infrastructure via files.
- Version-controlled files promote consistency and deployment speed.
- Aligns with GitOps principles for effective collaboration.
- Reduces discrepancies in GNOME development workflows.
- Facilitates consistent, rapid infrastructure configuration management.

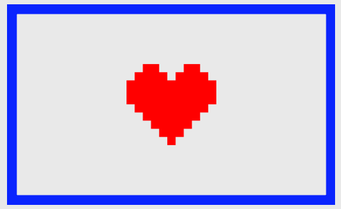




Benefits for GNOME on Linux

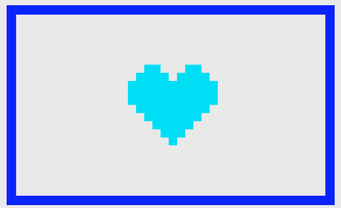
- Automates repetitive tasks in GNOME development.
- Ensures easily replicated development environments.
- Reduces errors in the development process.
- Improves efficiency throughout the development lifecycle.
- Enhances GNOME development on Ubuntu systems.

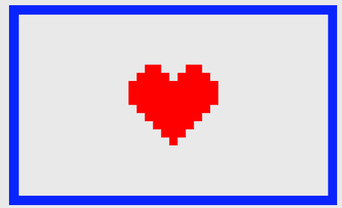




Benefits of GitOps for GNOME on Linux

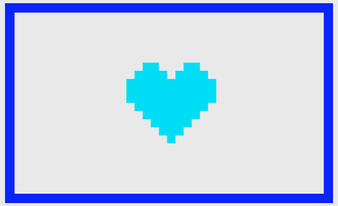
- Scalability: Effortlessly handle numerous deployments.
- Automation: Minimize human involvement in repetitive tasks.
- Collaboration: Teams can easily collaborate on shared configurations.
- Visuals: Utilize bullet points accompanied by icons.

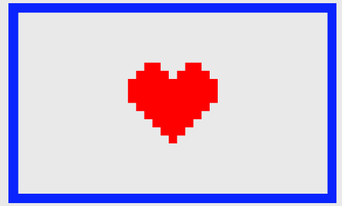




Tools and Technologies

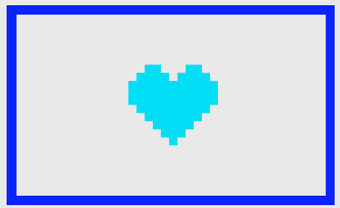
- Ansible automates configuration management tasks efficiently.
- Helm packages and manages Kubernetes applications.
- Terraform provisions infrastructure consistently and reliably.
- Tools streamline workflows and resource management.
- Aligns well with GitOps principles and practices.

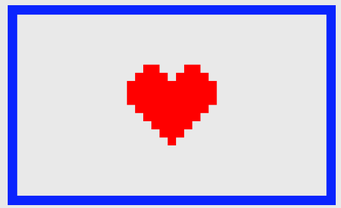




Integrating Git with Deployment Pipelines

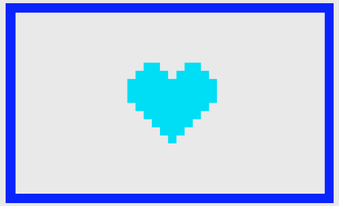
- Git enhances application deployment process management.
- Jenkins and GitLab CI/CD streamline developer workflows.
- Enables efficient version management for applications.
- Improves collaboration in GNOME application development.
- Strengthens deployment pipelines for developers.

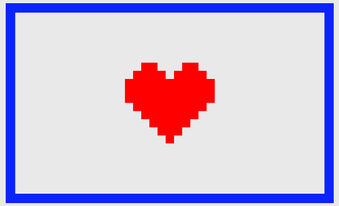


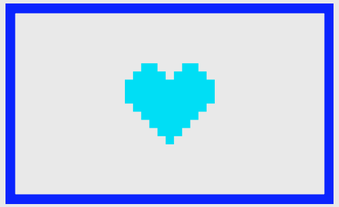


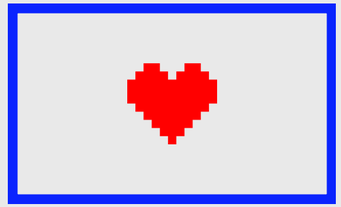
Continuous Deployment Explained

- Continuous Deployment automates software update releases.
- Code changes are automatically tested and deployed.
- GitOps workflow triggers deployments with each commit.
- Reduces time-to-market for GNOME applications.
- Streamlines development and deployment processes effectively.

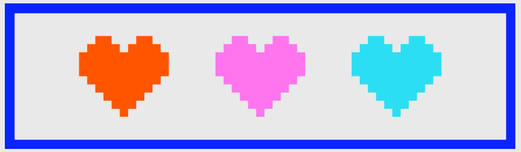


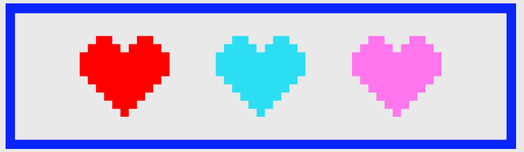






ANY QUESTIONS?





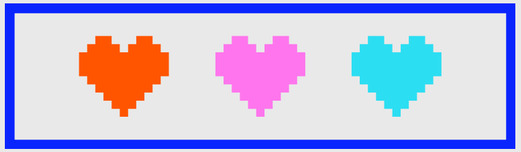
WHICH OF THE FOLLOWING BENEFITS DOES GITOPS BRING TO GNOME DEVELOPMENT ON UBUNTU?

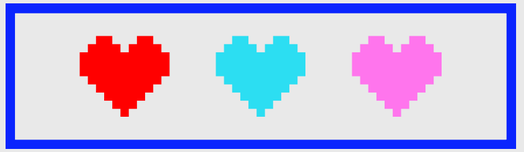
a. Reduces collaboration between teams

b. Automates repetitive tasks and ensures replicable environments

c. Eliminates the need for configuration files

d. Restricts scalability and efficiency





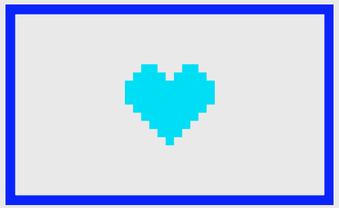
WHICH OF THE FOLLOWING BENEFITS DOES GITOPS BRING TO GNOME DEVELOPMENT ON UBUNTU?

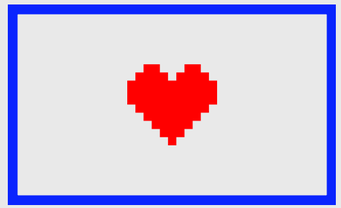
a. Reduces collaboration between teams

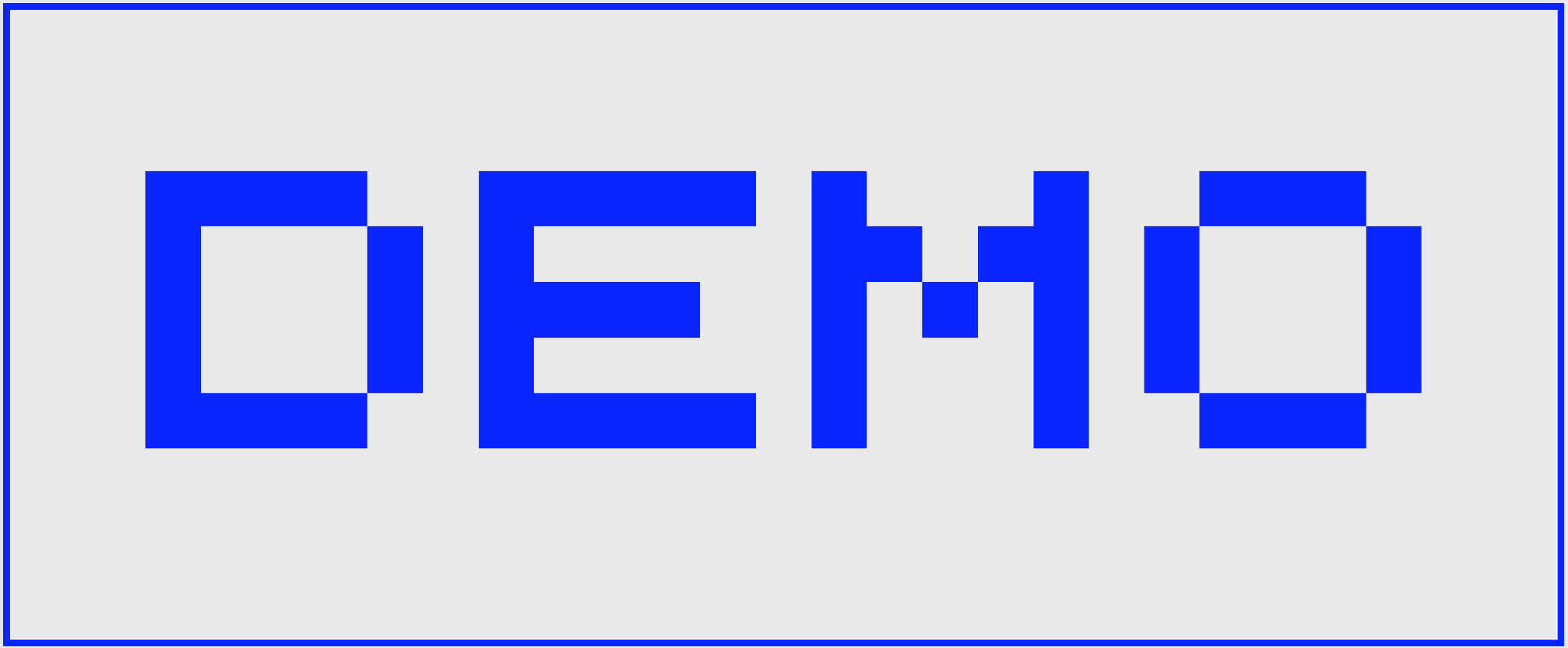
b. Automates repetitive tasks and ensures replicable environments

c. Eliminates the need for configuration files

d. Restricts scalability and efficiency






DEMO

Best Practices for GNOME Applications

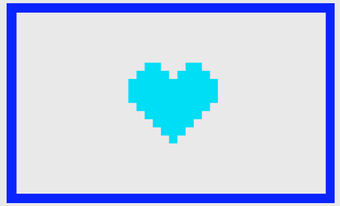
- Use version tagging for organized deployments.
- Implement automated testing to ensure reliability.
- Employ rollback mechanisms to reduce downtime.
- Enhance security with structured deployment processes.
- Boost user trust in Ubuntu environments.

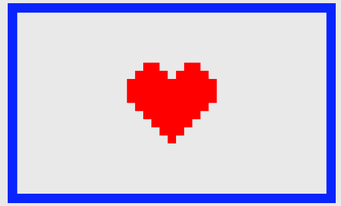
Security Challenges

- GitOps presents unique security challenges for applications.
- Repository access can lead to potential vulnerabilities.
- Deployment pipelines may have misconfigurations risks.
- Supply chain attacks pose significant exposure threats.
- Early risk identification is vital for mitigation.

Implementing Security Best Practices

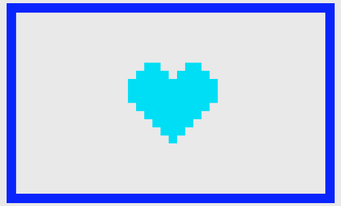
- Implement role-based access controls for security.
- Use secret management tools to protect data.
- Automate audits to maintain configuration integrity.
- Restrict modifications to authorized GNOME developers.
- Ensure secure GitOps workflows in development.

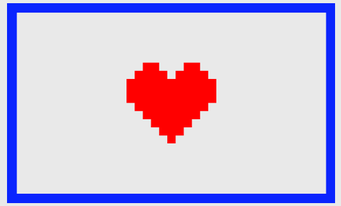


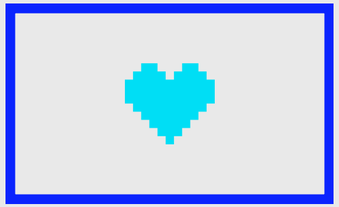


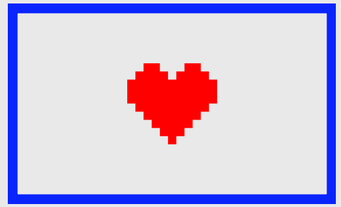
Future of GitOps and Security in Development

- GitOps growth demands enhanced security protocols.
- Evolving threats require continuous security improvements.
- Future trends include advanced monitoring solutions.
- AI-based systems preemptively identify vulnerabilities.
- Focus on GNOME and Ubuntu environment security.

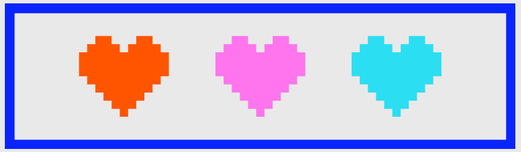


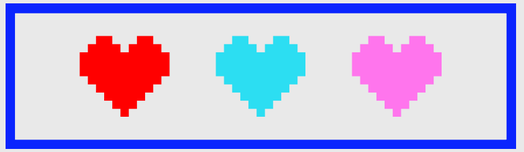






ANY QUESTIONS?





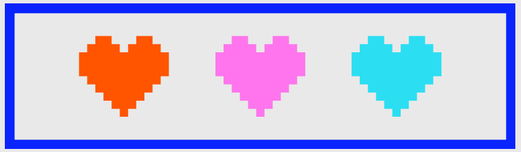
WHICH TOOL IS NOT MENTIONED AS PART OF THE CONFIGURATION MANAGEMENT FOR GNOME ON UBUNTU?

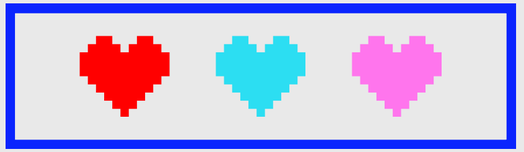
a. Ansible

b. Terraform

c. Helm

d. Docker Compose





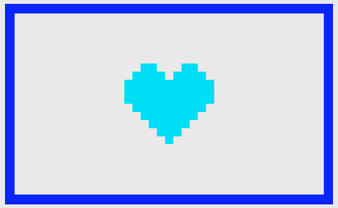
WHICH TOOL IS NOT MENTIONED AS PART OF THE CONFIGURATION MANAGEMENT FOR GNOME ON UBUNTU?

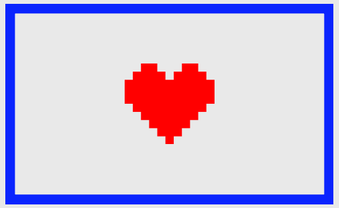
a. Ansible

b. Terraform

c. Helm

d. Docker Compose

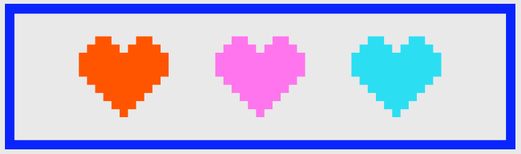


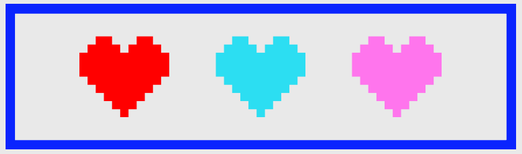


CONCLUSION

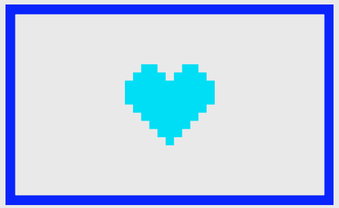
CONCLUSION

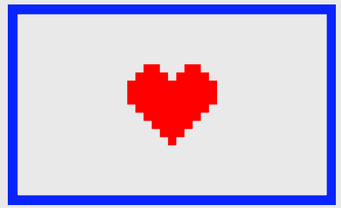
- Recap of GitOps and its significance.
- Addressing GNOME development challenges.
- Enhancing GNOME on Ubuntu through GitOps.
- Looking ahead: real-world applications and future trends.






OS.DEV
community
grow together





THANK YOU