



Scaling The Pattern's Cloud Infrastructure for Peak Performance

Executive Summary

The Pattern is a personalized wellness and astrology platform offering deep self-knowledge and relationship insights through its mobile and web applications. With millions of users worldwide, the platform must handle sudden high traffic surges—especially during marketing campaigns—without compromising responsiveness or stability. To support this growing demand, The Pattern partnered with Binbash to enhance scalability and performance in their production Kubernetes (EKS) environment on AWS. This second phase of their cloud modernization journey focused on dynamic autoscaling, advanced monitoring, and proactive performance optimization.

Customer Challenge

Anticipating increased traffic from marketing campaigns, The Pattern aimed to:

- Enhance autoscaling to handle traffic spikes
- Improve observability and real-time alerting
- Strengthen infrastructure resilience
- Optimize costs by avoiding overprovisioning

Solution

binbash delivered a comprehensive, multi-faceted solution that tackled the core scalability challenges by implementing:

- **Faster Cluster Autoscaling** using Karpenter for real-time provisioning of EKS nodes.
- **Advanced Workload Autoscaling** based on live metrics, leveraging Prometheus.
- **High Availability Prometheus** setup for resilient monitoring and alerting.
- **Stress Testing & Optimization** through real-world scenarios to fine-tune performance thresholds.
- **Documentation & Knowledge Transfer** to empower The Pattern's internal team.



THE PATTERN

The Pattern is an astrology-based mobile app offering deeply personalized self-understanding and insight into your life cycles, plus compatibility analysis with others through “Bonds.” It helps you feel seen, understood, and empowered to connect more meaningfully.

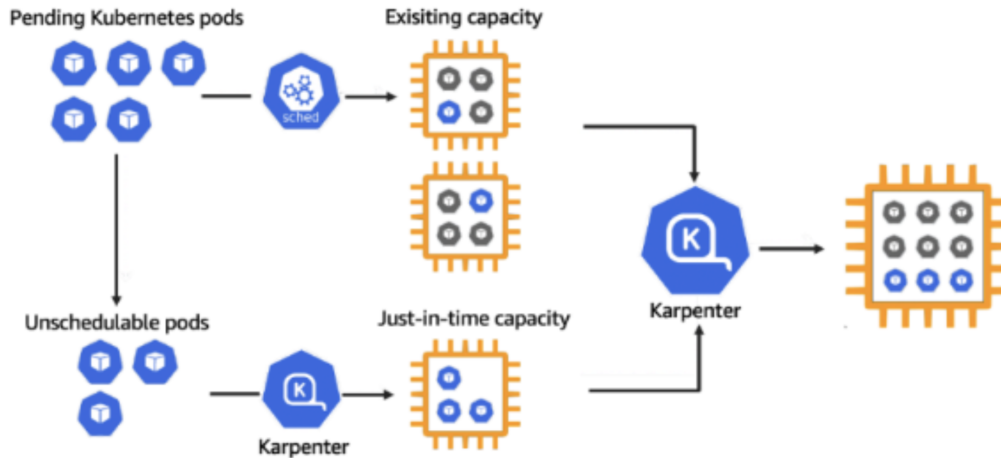


We brought binbash onboard to bolster our DevOps and IT infrastructure. They migrated our environments to AWS EKS, revamped our CI/CD pipelines, implemented secure and scalable infrastructure, and boosted observability and autoscaling. Their organization, responsiveness, and strong collaboration made this engagement extremely valuable.

**Kaitlyn Anderson -
Engineering Manager**



binbash®



The implementation was based on binbash's **Leverage™ AWS Reference Architecture** and guided by AWS Well-Architected Framework best practices.

Key Components of the Solution

- **Cluster Autoscaling with Karpenter:** Replaced AWS Cluster Autoscaler with Karpenter for faster node provisioning and better cost efficiency.
- **Workload Autoscaling:** Tested and configured multiple Prometheus metrics to drive Horizontal Pod Autoscalers (HPA) for backend services and background workers.
- **High Availability Monitoring:** Prometheus stack deployed integrated with AlertManager for Slack alerts.
- **Stress Testing:** Simulated past traffic spikes using k6 to validate autoscaling behavior, response times, and stability under load.





Results

binbash's work significantly improved the resilience, observability, and performance of The Pattern's production platform:

- Scalability: EKS cluster now dynamically scales to match user demand, with near-instant node provisioning.
- Performance Stability: Platform maintained responsiveness during load tests replicating past failure scenarios.
- Observability: Real-time metrics and alerts enable proactive incident response.
- Cost Optimization: Intelligent autoscaling avoids unnecessary overprovisioning.
- Empowered Teams: The Pattern's internal engineers gained autonomy and knowledge through guided sessions and documentation.

Key Milestones

1. Cluster Autoscaling Upgrade – Installed and validated Karpenter in production.
2. Metric-Driven Workload Scaling – Implemented Prometheus-based autoscaling.
3. Stress Testing & Fine-tuning – Conducted multi-phase testing and iterative tuning.
4. Monitoring Resilience – Deployed Prometheus configuration with alerting.
5. Final Delivery & Handover – Conducted demos, knowledge transfer, and finalized documentation.

Conclusion

Binbash helped The Pattern transform its production cloud architecture into a highly resilient, responsive, and self-scaling platform. By leveraging Karpenter, Prometheus, HPA, and AWS-native tools—along with the Leverage™ framework—the solution empowered The Pattern to handle unpredictable traffic surges while reducing operational risks and manual intervention.

This engagement exemplifies Binbash's ability to deliver scalable cloud infrastructure aligned with the AWS Well-Architected Framework, enabling clients to meet business goals with confidence and efficiency.