Beyond the Dashboard: Building End-to-End Observability for Commerce and Payment Systems

Conf42 Observability 2025

Ashwin Das Gururaja - Senior Engineering Manager @ Adobe

Devang Gaur - Product Manager, Payments @ Adobe

The Stakes Are Higher Than Ever

$220K

Amazon loses per minute

During downtime incidents

$4.6M

Shopify orders per minute

Black Friday peak traffic

62%

Customers Abandon

After one failed payment attempt

In commerce, observability isn't just about uptime—it's about survival.

Sources: https://www.shopify.com/news/bfcm-data-2024, https://www.gremlin.com/ecommerce-cost-of-downtime, https://www.financemagnates.com/thought-leadership/online-merchants-lose-62-of-customers-who-experience-a-failed-transaction/

Your Guide Through Commerce Observability

Adobe Commerce

Scaling platforms handling millions daily transactions

Payment Systems Expertise

End-to-end observability architecture design

Real-World Battle Scars

Survived Black Friday, Cyber Monday chaos, meeting payment mandates - 3DS etc.

Commerce Observability

Traditional Monitoring

Focuses on basic service health checks. Answers simple uptime questions.

- Is my service up?
- CPU and Memory usage
- Response Time Metrics
- **HTTP error rates** (4xx/5xx codes)

Commerce Observability

Tracks complete customer journey and business outcomes. Monitors end-to-end experience.

- Can customers complete purchases?
- Is fraud detection blocking good customers?
- What's the actual customer experience?
- Are payment failures causing involuntary churn?
- Are customers able to edit their wallets correctly?

The Commerce Transaction Journey

Full-funnel observability tracks every step from browse to order fulfillment. Each touchpoint represents critical revenue impact.

Product Discovery

Page load times and search performance

Cart Addition

API response times

Checkout Process

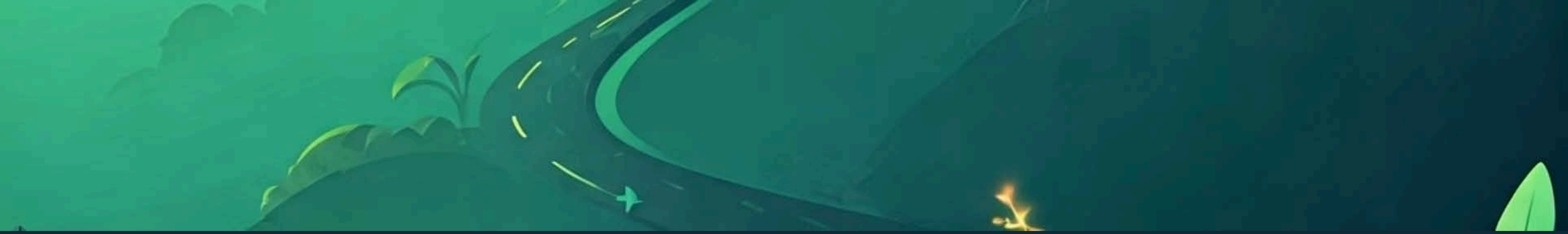
Form validation and payment method selections

Authorization & Fraud

Risk engine decisions and approval rates

Order Fulfillment

Confirmation and order processing



The Subscription Lifecycle Journey

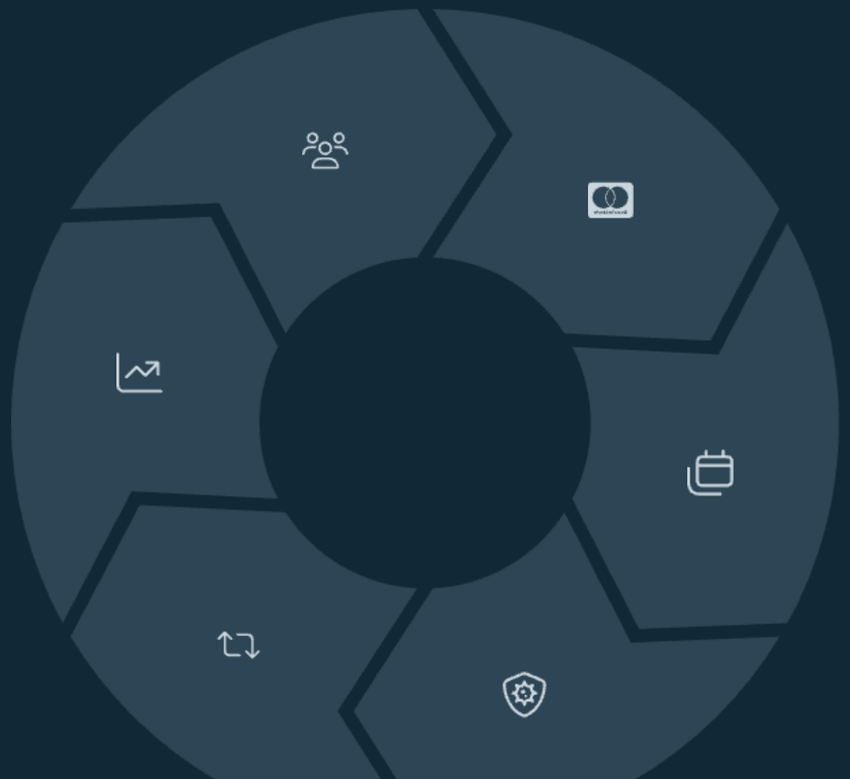
Full-Funnel Observability: Every Step Matters. Each step is a potential failure point that impacts ARR and retention.

Trial Signup

Conversion metrics and onboarding friction points

Free-to-Paid

Payment setup success rates and method preferences



Usage & Expansion

Feature adoption and upgrade revenue opportunities

Billing Cycle

Recurring billing events and schedule accuracy

Renewal

Retention rates and involuntary churn prevention

Payment Processing

Gateway performance and authorization rates

The 3 Pillars of Observability for Commerce & Subscriptions

Metrics Beyond System Health

Track revenue flow and business outcomes. Focus on customer-centric measurements.

- Revenue flow metrics (ARR, conversion rates)
- Payment success rates by processor
- Customer lifecycle metrics (churn, LTV)

- Time-to-value percentiles

Logs with Business Context

Capture decision reasoning and customer journey context. Link technical events to business impact.

- Payment processor responses
- Customer journey breadcrumbs
- Business decision reasoning
- Revenue-weighted error classifications

Traces Across Revenue Systems

Follow complete transaction flows across all systems. Map dependencies affecting revenue.

- End-to-end transaction flows
- Payment gateway dependencies
- Third-party service impact
- Subscription lifecycle tracking

Proactive vs. Reactive—The Mindset Shift

Spot Issues Before Customers Do

Reactive

Monitoring

Traditional approach waits for problems to surface. Customer complaints drive issue discovery.

- Alert when service is down
- Customer complaints drive discovery

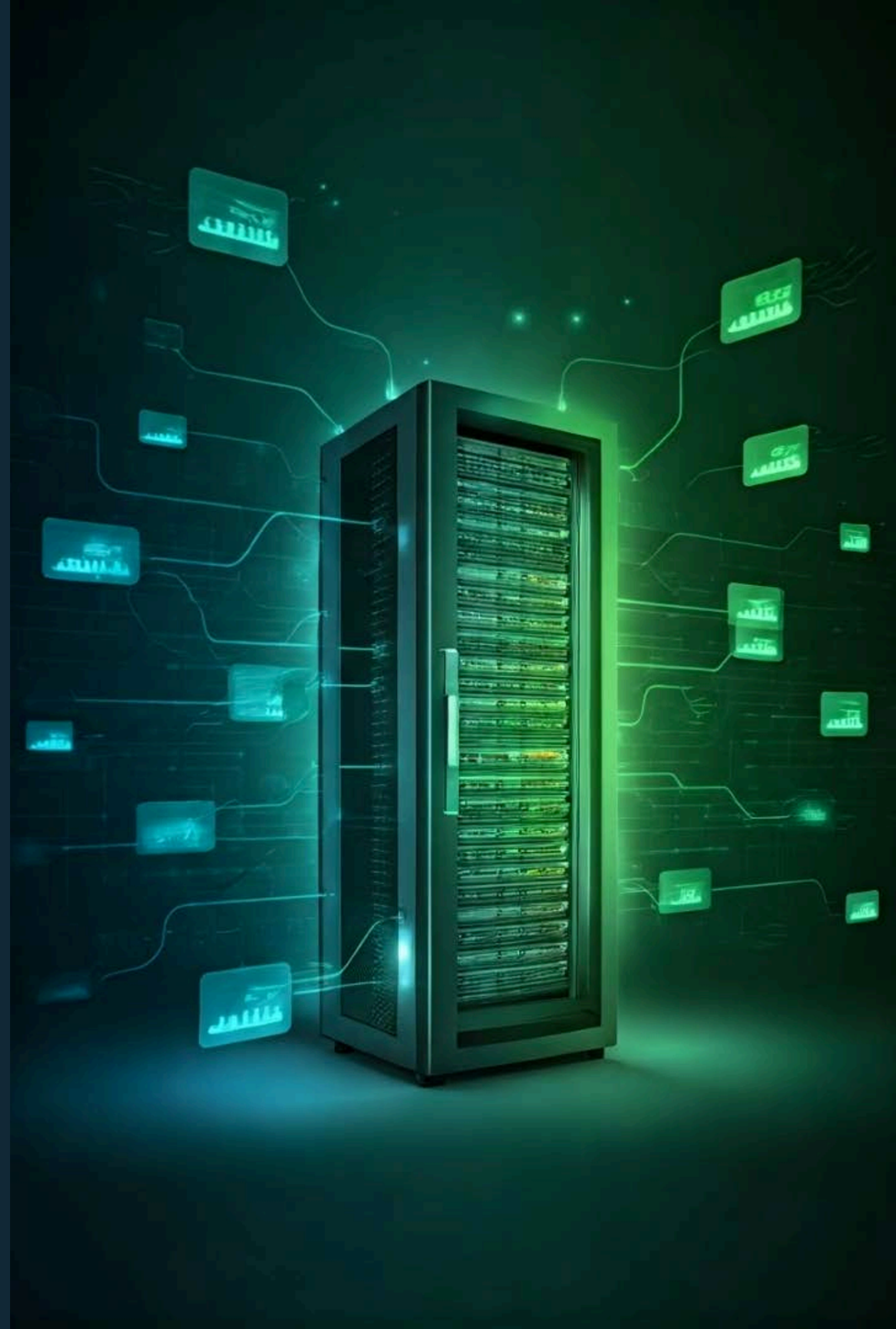
- Revenue already lost

Proactive Observability

Intelligent systems detect patterns before they impact customers. Prevention beats reaction.

- Detect degradation patterns
- Predict failure cascades
- Automated remediation
- Revenue protection mode

Example: Detecting 2% increase in payment failures before it becomes 20% involuntary churn.



Case Study: The Silent Killer - Involuntary Churn

The Problem

20-40% of total churn is involuntary: Failed payments silently destroy subscriber bases without warning

5-18% renewal failure rate: One in eight subscriptions fails at billing cycle

The Impact

$118 billion lost globally in 2020: Payment failures create massive revenue hemorrhage across industries

Traditional monitoring blind spot: Systems show "healthy" while customers quietly disappear

Zero real-time visibility: Businesses discover churn after customers already gone

Sources: Paddle: paddle.com/resources/reduce-voluntary-and-involuntary-churn Stripe: stripe.com/resources/more/failed-payment-recovery-101 GoCardless: gocardless.com/en-us/guides/posts/recalibrate-your-payment-mix-to-reduce-involuntary-churn

Tackling Unknown Unknowns

Traditional Approach

Teams define known failure modes upfront. Create alerts for expected problems only.

- Relies on **reactive monitoring** (alerts trigger after impact)
- Contains **blind spots** for unexpected or novel issues
- Investigations are **manual and slow**
- Focuses on infrastructure & service health only
- Answers: “Are all services returning 200 OK?”, “Is memory usage within limits?”

Unknown Unknown Detection

Proactive, intelligent systems surface insights from patterns you didn’t know to look for.

- 📈 **Anomaly detection** on business and system metrics
- 🔗 **Cross-system correlation** of logs, events, and telemetry
- 🧠 **Behavioral pattern recognition** to flag outliers
- ⚙️ **Automated root cause analysis** and investigation workflows
- Answers: *“Why is conversion dropping?”*, *“What changed that we didn’t expect?”*

> "What weird thing is happening that we didn't think to monitor?"

Practical Implementation Tips

Lessons from the Trenches

Do:

- Start with the subscriber journey, not system architecture
- Instrument for ARR outcomes, not just technical health
- Create runbooks with churn-impact context
- Test your observability during billing cycles

Don't:

- Alert on everything—focus on revenue and churn impact
- Ignore payment processor dependencies
- Forget about in-app, mobile and other billing experience metrics
- Neglect customer success team communication

Organizational Alignment

Getting Everyone on the Same Page

The Challenge:

- Engineering: Focuses on system uptime and performance
- Product: Cares about feature adoption and retention
- BU/Finance: Prioritizes ARR and churn reduction
- Customer Success: Wants seamless billing experience

The Solution:

- Shared dashboards with ARR context
- Cross-functional incident response for payment issues
- Revenue-impact scoring for all alerts
- Regular business review of subscription health metrics

Why Observability is a PM's Growth Lever

Making smarter decisions in real time

Traditional product metrics show what happened yesterday. Observability reveals what's happening now and predicts tomorrow's revenue impact.

What You Can't See

Checkout Issues

- Payment failures go unnoticed.
- Customers leave silently.

Renewal Problems

- Subscription issues appear too late.
- Revenue leaks undetected.

Missed Upgrades

- Missed expansion chances.
- Growth stalls.

Late Discovery

- Finance spots revenue drop.
- Crisis ensues.

From System Health to Revenue Health

Traditional engineering metrics miss the bigger picture. Product-centric observability connects technical health to business outcomes.

Traditional Metrics

- CPU/Memory Usage
- Uptime
- API Response Time
- Error Logs

Product-Centric Observability

- Free-to-paid conversion rate
- Failed payments by processor
- Wallet update success rate
- Renewal failure rate

React in Hours, Not Quarters

Without Observability

Quarterly finance reviews reveal revenue drops. Teams scramble for months-old answers.

- 90-day detection delay
- Revenue hemorrhaging continues
- Post-mortem panic mode
- Customer trust erodes

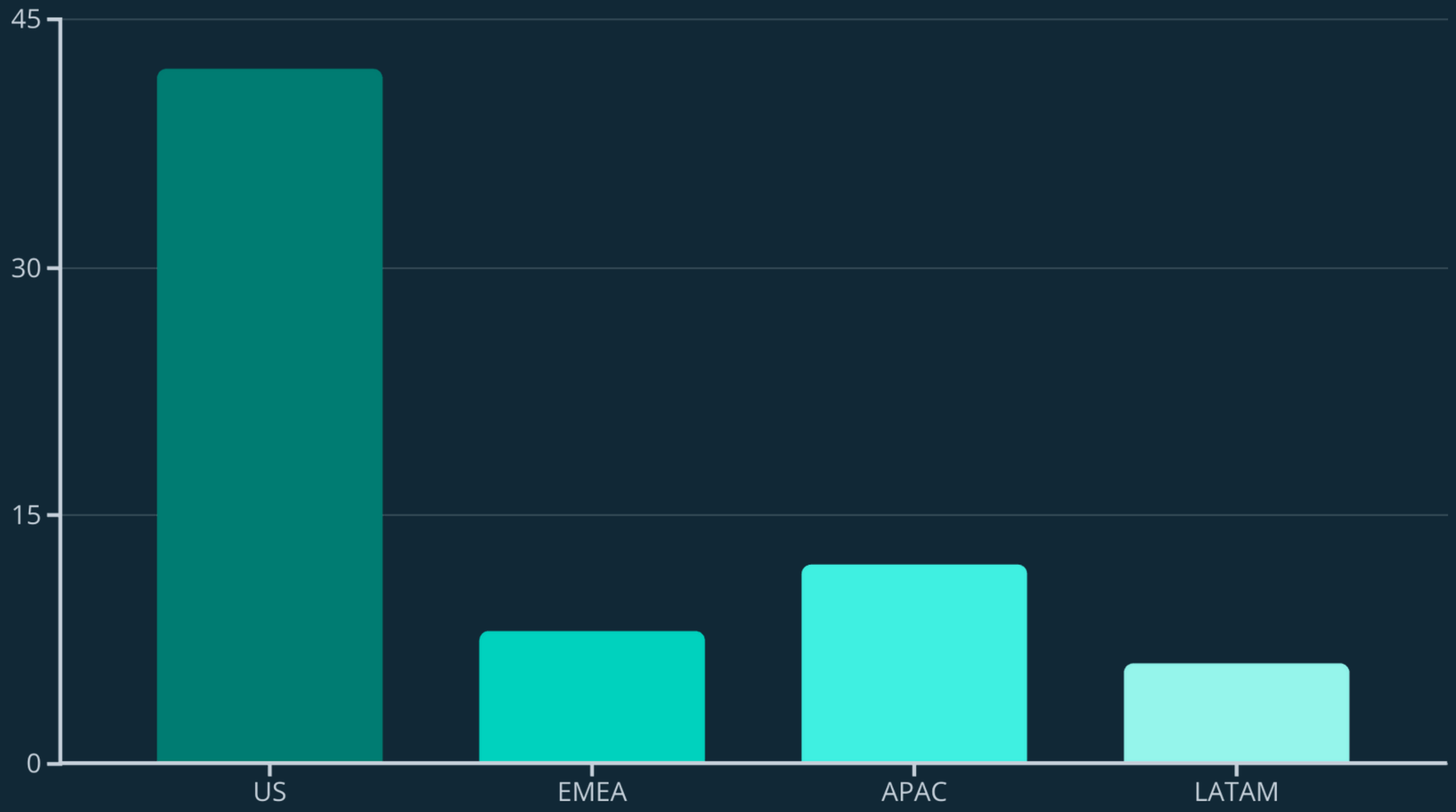
With Real-Time Observability

Instant alerts catch payment failures immediately. Teams respond within hours.

- Real-time failure detection
- Proactive revenue protection
- Confident decision-making
- Customer retention focus

The Wallet Issue We Caught in Time

Real observability in action. Our dashboard caught a huge wallet update failure spike in the US region.



PMs as the Observability Champion

Product managers bridge technical insights with business impact. They translate observability data into actionable strategies.

Engineering

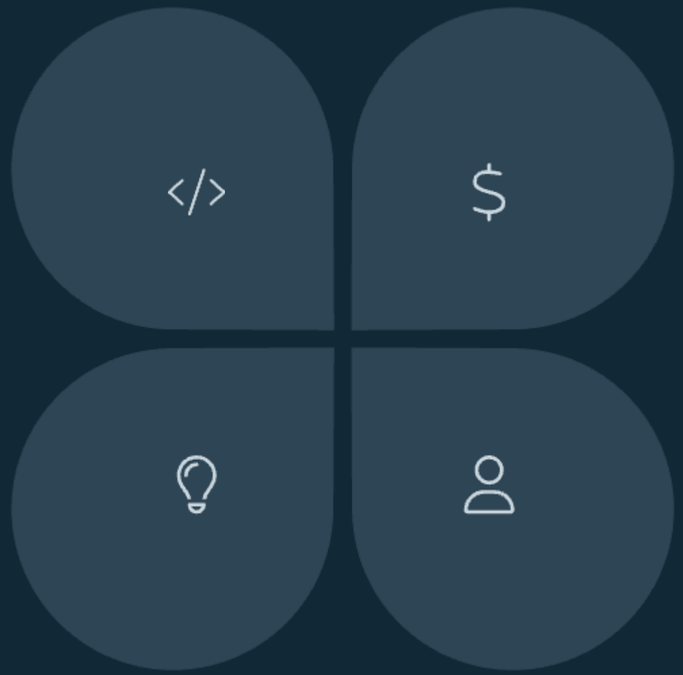
Technical implementation and system health monitoring

- Infrastructure alerts
- Performance metrics
- Error tracking

Product Strategy

Central hub connecting all perspectives

- Data-driven decisions
- Cross-team alignment
- Business value delivery



Finance

Revenue impact and cost optimization

- Payment success rates
- Churn prevention
- ROI measurement

Customer Success

User experience and retention focus

- Customer satisfaction
- Support ticket trends
- Usage patterns

Start Where the Money Is

Focus observability efforts on revenue-critical moments. These three touchpoints generate the highest business impact.

Free-to-Paid

Conversion friction costs millions in lost revenue

Payment Setup

Failed configurations create immediate churn risk

Renewal

Silent failures compound into subscription decay

Monitor these moments obsessively. Small improvements here deliver exponential returns.

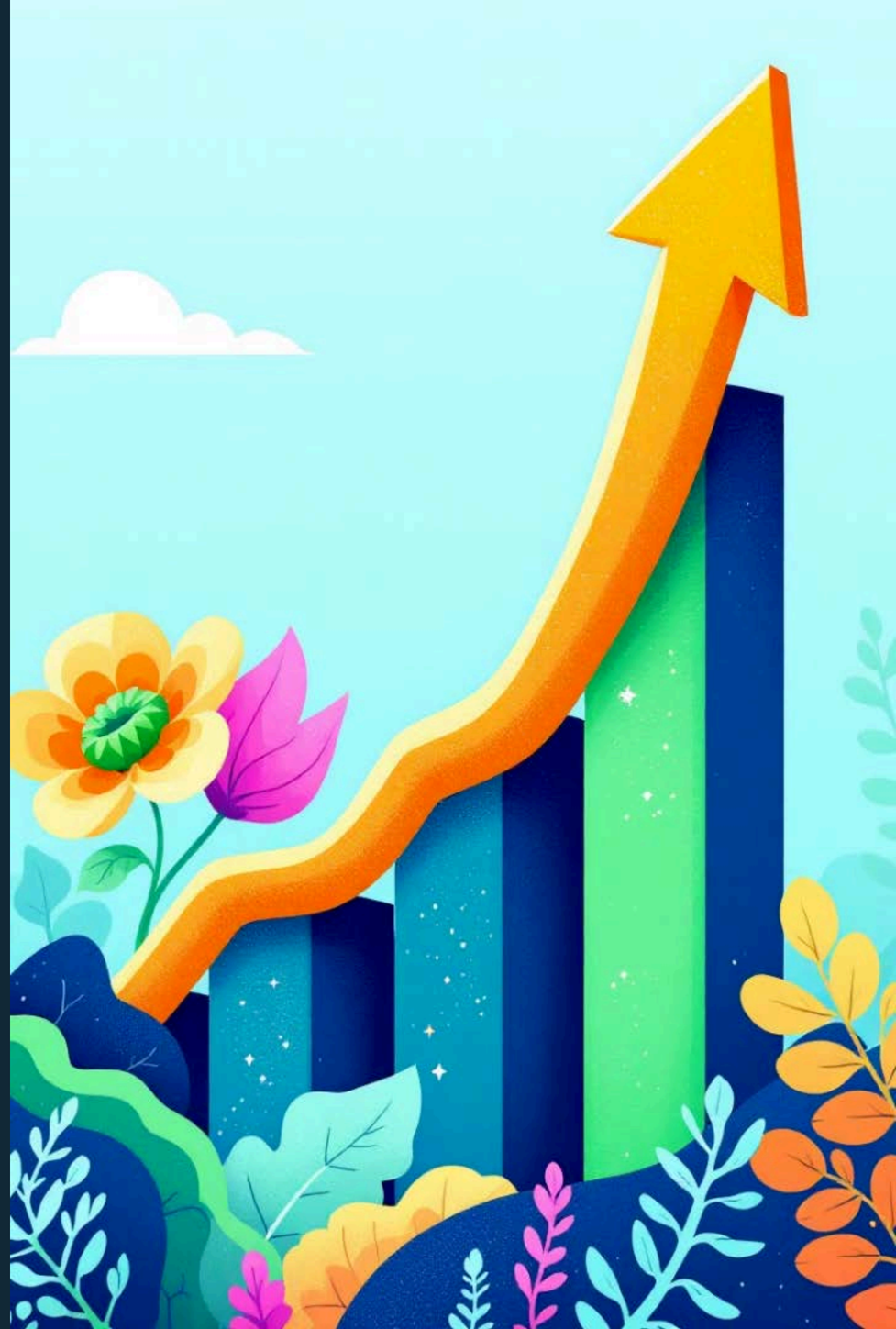
Key Takeaways

1. **Map customer journey to metrics:**
   Connect every touchpoint to measurable business outcomes

2. **Track ARR, churn, LTV:**
   Focus on revenue indicators that drive sustainable growth

3. **Shared dashboards across teams:**
   Align engineering, finance, and product on common goals

4. **Observability as growth investment:**
   Treat monitoring infrastructure as competitive advantage, not cost center



Thank You

Start building observability that drives revenue growth. Your customers—and your bottom line—depend on it.