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2025 SUPER HACK SUPEROPS

Building the Future of Agentic AI For IT Management

Team Name : DASH

Team Leader Name : Rithik Chopra

Problem Statement : Service efficiency improvement for MSPs and IT Teams

Brief about the Idea:

MSPs (Managed Service Providers) lose millions every year because tickets get stuck, SLAs are missed, technicians waste hours on manual logs, and knowledge bases quickly go stale.

Our **SLA Command Center** is an AI-powered control tower that **protects SLAs and revenue**. It predicts problems before they blow up, routes work to the right people, drafts solutions, tracks time automatically, and keeps knowledge clean, turning IT service delivery from **reactive firefighting into proactive, profitable operations.**

Key Highlights:

- **Money-first impact** - Every decision shows real business value: "₹ saved" by avoiding penalties, faster fixes, and billed hours recovered.
- **SLA Guardian** - Predicts when deadlines are at risk and prevents breaches before they happen.
- **Technician Copilot** - Gives techs ready-to-use solutions and safe customer updates in seconds.
- **Passive Autotracker** - Builds worklogs automatically so no time (or billing) is lost.
- **Self-healing Knowledge Base** - Auto-creates and auto-tests KB articles so only fresh, working fixes stay live.
- **Fair Routing + Growth** - Balances workload across the team while safely training juniors on low-risk tickets.
- **Post-Mortems that Count** - One click produces a clear report of SLA wins, faster resolution, and ₹ **saved this week**.

Opportunity should be able to explain the following:

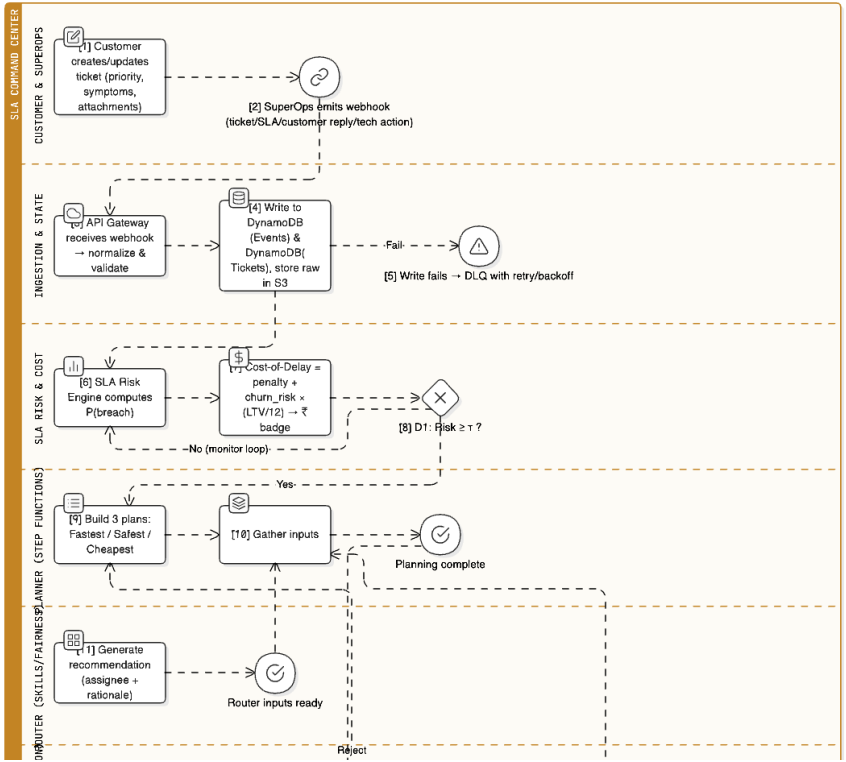
- USP of the proposed solution

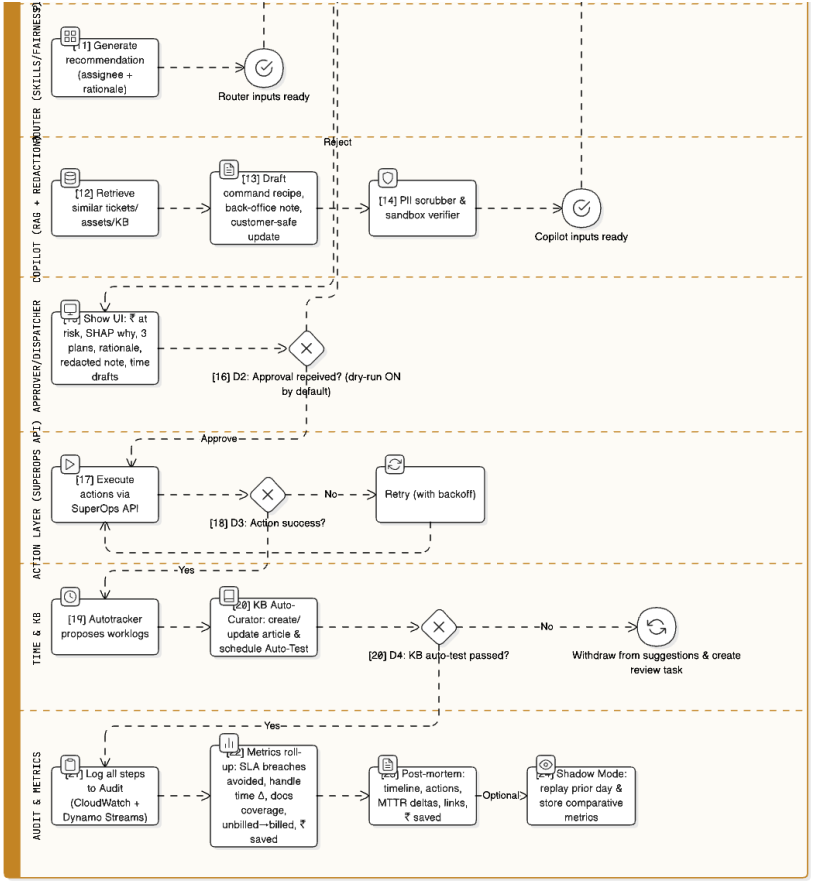
- **Proactive SLA protection** – Predicts and prevents SLA breaches in advance rather than reacting after failure.
- **Financially aware AI** – Quantifies business impact by linking every action to penalties avoided, hours saved, and revenue protected.
- **Comprehensive lifecycle coverage** – Integrates routing, resolution, time tracking, knowledge upkeep, and post-mortems into a single solution.
- **Balanced and growth-oriented routing** – Distributes workloads fairly while enabling safe upskilling of junior technicians.
- **Frictionless adoption** – Passive time tracking and automatic knowledge updates minimize technician resistance by eliminating extra effort.
- **Tailored for MSP operations** – Purpose-built for high-volume, penalty-sensitive environments where missed SLAs directly erode profitability.
- **Achievable solutioning** – Real-time SLA risk prediction and cost-avoidance dashboard deliver a visible advantage over existing tools.

List of features offered by the solution

- **SLA Guardian** - Predicts and prevents potential SLA breaches before they occur.
- **Smart Ticket Routing** - Assigns tickets fairly based on workload, expertise, and technician growth.
- **AI-Powered Resolution Assistant** - Suggests draft fixes and customer-ready responses to reduce resolution time.
- **Context Enrichment** - Automatically aggregates logs, past tickets, and KB articles for faster troubleshooting.
- **Passive Time Tracker** - Captures technician work effort automatically, ensuring accurate compliance and billing.
- **Self-Healing Knowledge Base** - Updates, validates, and cleans knowledge articles continuously.
- **Cost Impact Dashboard** - Quantifies penalties avoided, hours saved, and ROI improvements.
- **Post-Mortem Generator** - Creates automated, audit-ready SLA compliance and impact reports.
- **Technician Growth Insights** - Identifies skill gaps and recommends safe upskilling opportunities.
- **Customer Communication Drafts** - Generates professional, SLA-compliant updates to reduce escalations.
- **Seamless ITSM Integration** - Works with existing service desk tools (ServiceNow, Jira, etc.) without disruption.
- **Scalable Multi-Tenant Design** - Built specifically for MSPs handling multiple client environments.

Process flow diagram or Use-case diagram





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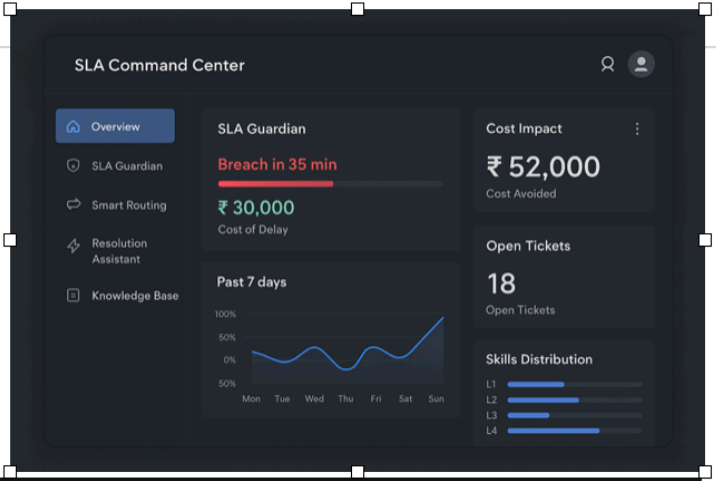

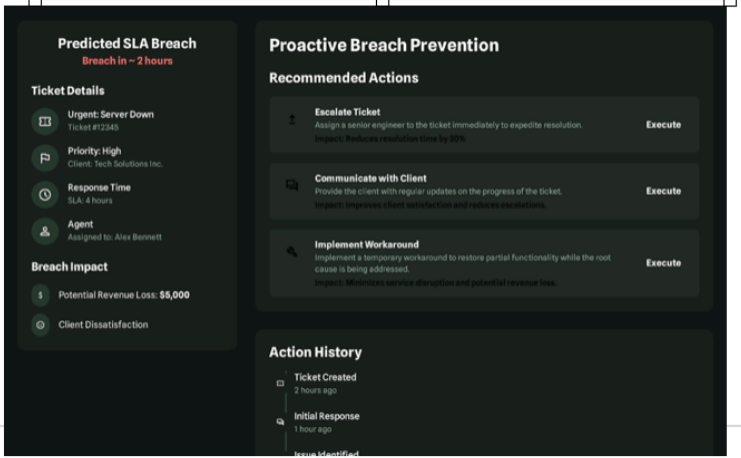

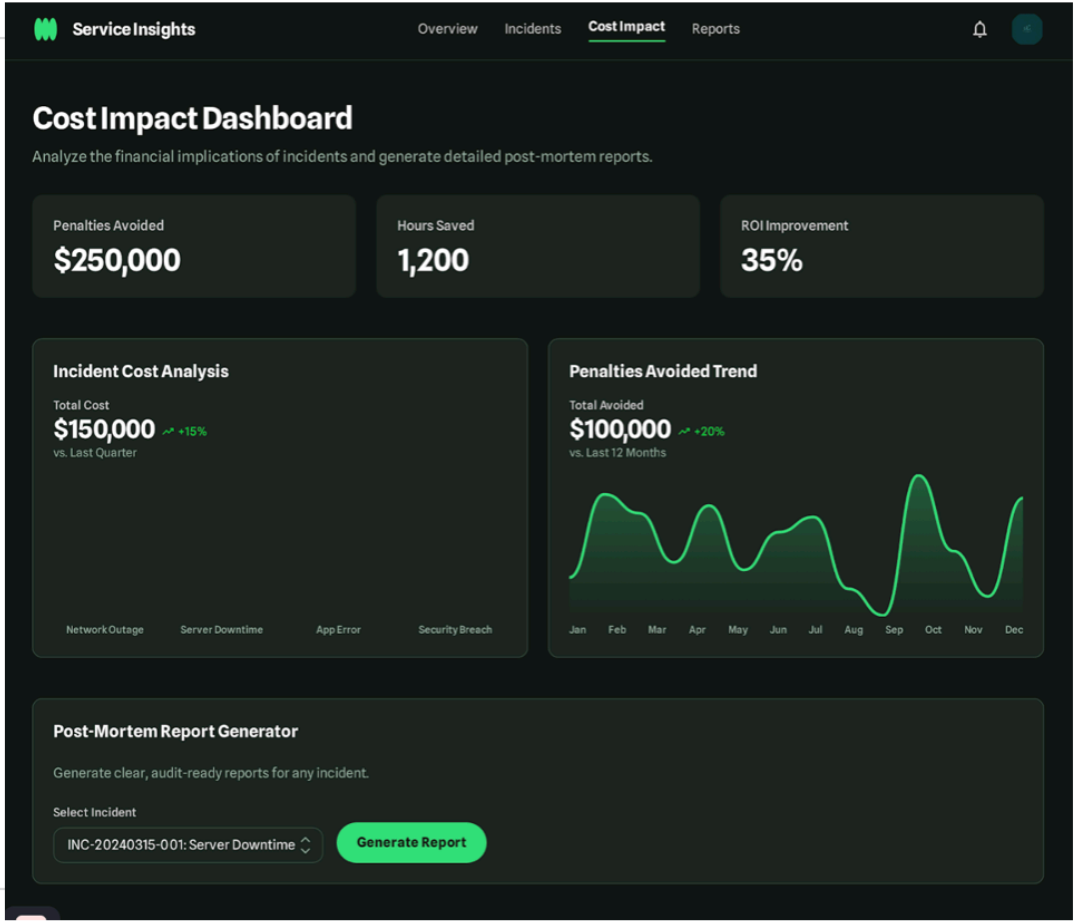

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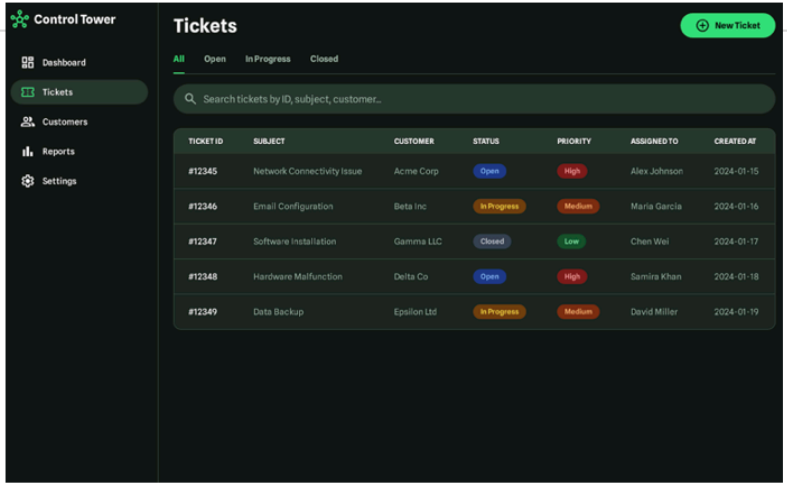
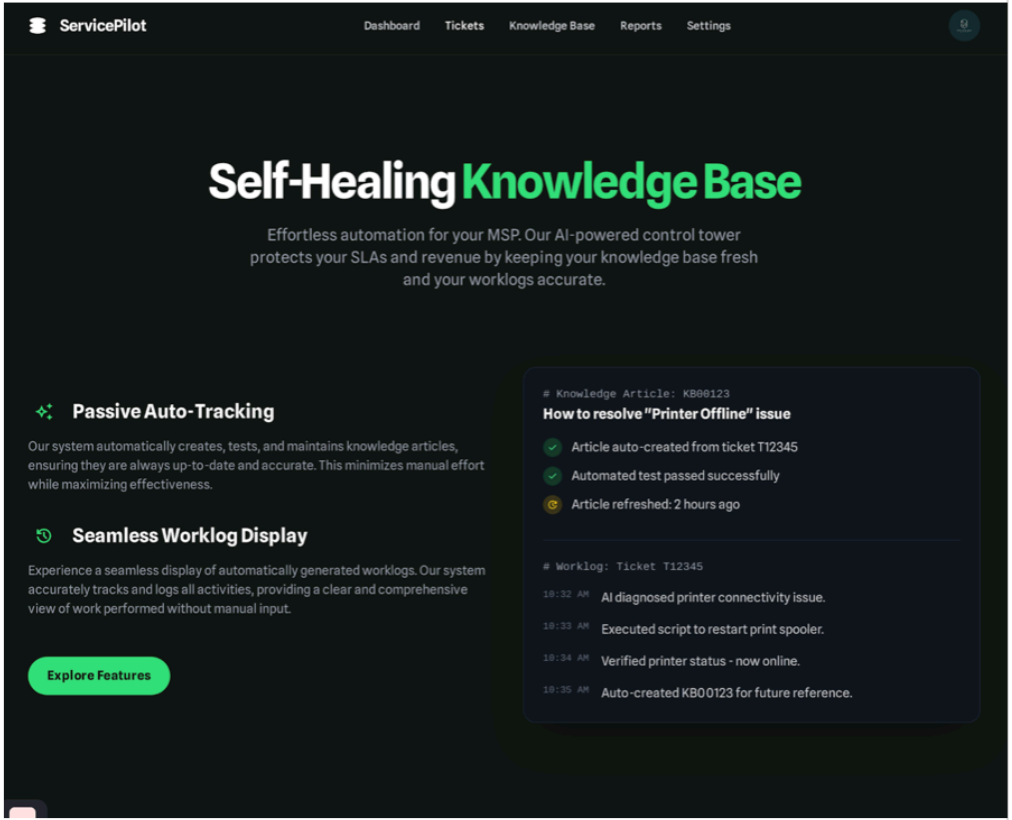
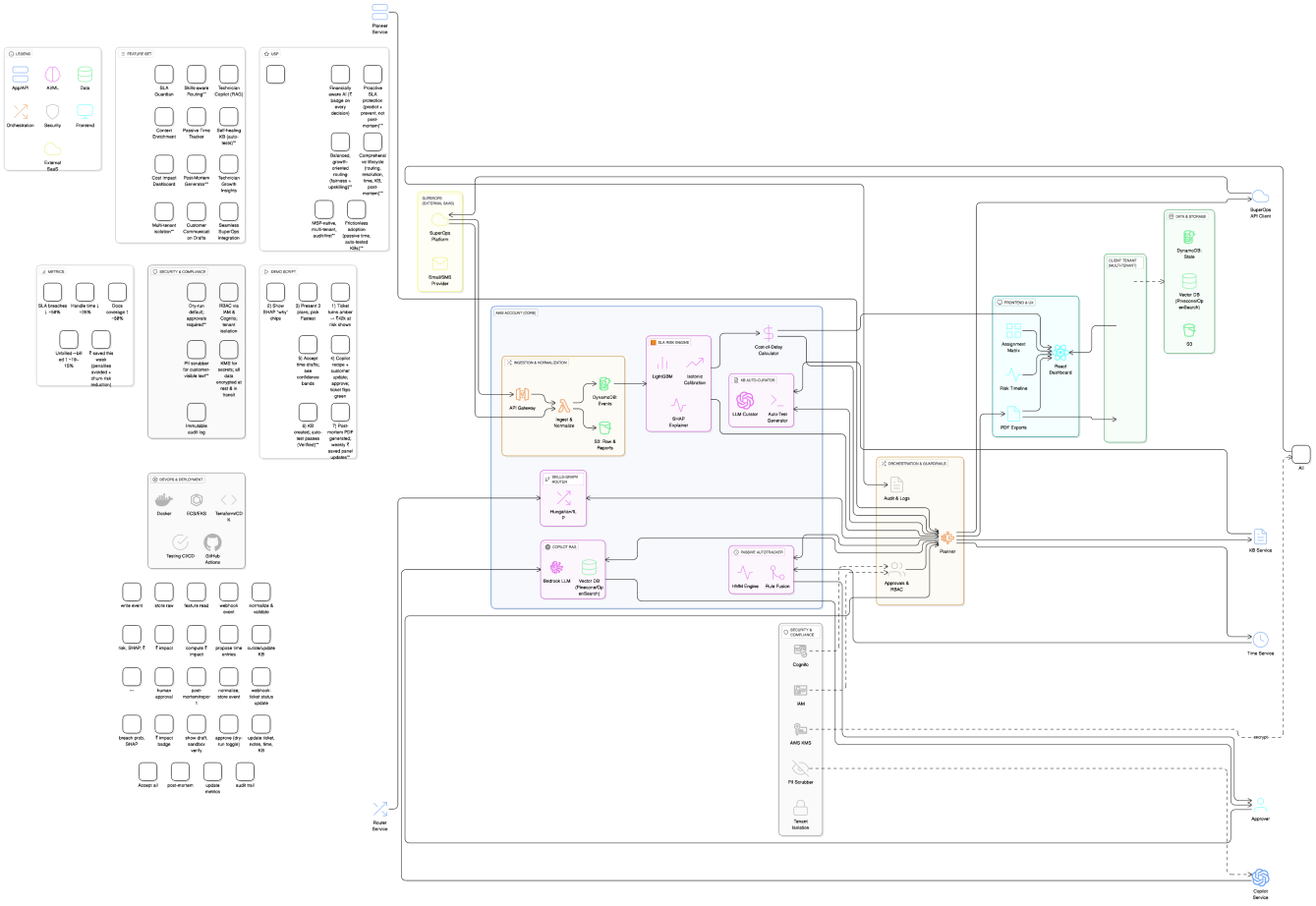




Architecture diagram
of the proposed solution



Technologies to be used in the solution:

1. Data & Event Ingestion

- **SuperOps APIs / Webhooks** – Stream tickets, SLA updates, customer replies, technician actions.
- **AWS API Gateway + Lambda** – Lightweight serverless ingest and normalization.
- **Amazon DynamoDB / S3** – Store normalized events, ticket states, KB drafts.

2. AI / ML Intelligence Layer

- **SLA Risk Engine** – LightGBM + Isotonic Calibration for breach probability; SHAP for explainability.
- **Cost-of-Delay Calculator** – Business logic (penalties, LTV, churn risk) tied to ₹ value impact.
- **Skills-Graph Router** – Hungarian/ILP optimization for fair and skill-based assignment.
- **Copilot RAG** – AWS Bedrock (Anthropic/LLM) + Vector DB (Pinecone / OpenSearch) for context-packed suggestions.
- **Passive Autotracker** – Hidden Markov Models + rule fusion to reconstruct worklogs from signals.
- **KB Auto-Curator** – LLM + scripts for article creation, tagging, and auto-test generation.

3. Workflow Orchestration & Guardrails

- **AWS Step Functions** – Plan-then-act workflows with Fastest / Safest / Cheapest options.
- **RBAC & Approval Layer** – IAM + custom RBAC policies for safe human-in-loop execution.
- **Audit & Logs** – CloudWatch + Dynamo streams for immutable audit trails

4. Application & APIs

- **FastAPI / Node.js** – Microservices for planner, router, autotracker, KB curator.
- **GraphQL / REST APIs** – Unified API gateway for UI + integrations.
- **SuperOps API Client** – Action layer to update tickets, notes, logs.

5. Frontend & User Experience

- **React + Tailwind** – Sleek dashboard for SLA risks, costs, and approvals.
- **D3.js / Recharts** – Rich visualizations (risk bands, cost-of-delay timelines, assignment matrices).
- **PDFKit / ReportLab** – Post-mortem and SLA compliance report exports.

6. Security & Compliance

- **AWS KMS** – Key management for secrets and sensitive data.
- **IAM + Cognito** – Secure access, roles, and auth.
- **Audit-first Architecture** – Dry-run defaults, undo-last-action, tenant isolation.

7. DevOps & Deployment

- **IaC with Terraform / AWS CDK** – Infrastructure as code for reproducibility.
- **Docker + ECS / EKS** – Containerized microservices deployment.
- **CI/CD (GitHub Actions)** – Fast iteration, auto-test on PRs.

Estimated implementation cost (optional):

Key take: LLM tokens dominate variable cost. Everything AWS-serverless (API GW, Lambda, Step Functions, DynamoDB, S3, CloudWatch, Cognito, KMS) is cheap at hackathon scale. Vector DB is the next meaningful line item. We'll gate LLM calls behind the SLA Risk threshold so we don't pay when risk is low.

Hackathon Demo (1 tenant, small dataset)

Scale: ~300–800 tickets total; risk gate ~30%; K=1–2 calls/ticket; ~1–2M tokens total

LLM (Bedrock): $15–$80

Vector DB (OpenSearch serverless or Pinecone starter): $5–$25

API GW + Lambda + Step Functions: $5–$20

DynamoDB + S3: $3–$10

CloudWatch + Cognito + KMS: $5–$15
Total: $30–$150 for the whole event
Why this low: Serverless + tiny token volume + small storage.

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