---

marp: true paginate: true size: 16:9 math: katex headingDivider: 2 class: lead footer: "" color: white backgroundColor: '#0b1220' theme: product-docs

---

<style> / *@theme product-docs* / @import "default";

:root { --bg: #0b1220; --bg2: #0f172a; --fg: #e6edf3; --accent: #6ee7ff; --muted: #9fb3c8; }

section { font-family: Inter, system-ui, -apple-system, "Segoe UI", Roboto, "Helvetica Neue", Arial, "Noto Sans", "Liberation Sans", sans-serif; color: var(--fg); background: linear-gradient(180deg, var(--bg) 0%, var(--bg2) 100%); }

h1, h2, h3 { color: var(--accent); letter-spacing: .3px; }

/ *Page numbers shown bottom-right* / section::after { content: attr(data-marpit-pagination) " / " attr(data-marpit-pagination-total); position: absolute; right: 24px; bottom: 18px; font-size: 0.8rem; color: var(--muted); }

/ *Helpful layout helpers* / section.lead { display: grid; place-items: center; text-align: center; }

section.tight * { line-height: 1.2; }

blockquote { border-left: 4px solid var(--accent); padding-left: 12px; color: var(--muted); }

code, pre code { background: rgba(255,255,255,0.06); border-radius: 10px; } </style>

<!-- _class: lead -->

Product Documentation Deck

Your Company / Product Name

Contact: 23f3002227@ds.study.iitm.ac.in

Why Marp for Product Docs?

- Single source of truth in version control (Git/GitHub)
- Export to **HTML**, **PDF**, **PPTX** via Marp CLI
- Reusable custom theme (`product-docs`) included inside this file
- Page numbers via theme CSS (bottom-right)
- KaTeX math for specifications & complexity

Tip: Keep images in `assets/` and use relative paths so exports work everywhere.

<!-- backgroundImage: assets/bg-architecture.jpg --> <!-- backgroundSize: cover --> <!-- backgroundPosition: center -->

System Architecture (Overview)

- Service boundaries, data flow, and external dependencies
- Identify ownership and SLAs per component
- Call out failure domains and retry/backoff strategies

Feature Summary

- **Authentication & Authorization:** OAuth 2.1, OIDC
- **Observability:** Structured logs, traces, RED metrics
- **Data:** Postgres for OLTP, S3 for blobs, Redis cache
- **APIs:** REST + Async events (Kafka)

Performance & Complexity

We target near-linear scalability with respect to input size n .

- Sorting stage: $O(n \log n)$
- Linear scan stage: $O(n)$

Combined complexity (dominant term):

$$ T(n) = T\left(\frac{n}{2}\right) + O(n) \implies T(n) = O(n \log n) $$

Throughput model:

$$ \text{QPS}_{\max} \approx \frac{C \cdot k}{L}\quad \text{where } C=\text{cores},\ k=\text{concurrency},\ L=\text{avg latency} $$

API Contract (Excerpt)

```
GET /v1/items?page=1&limit=50
Accept: application/json
Authorization: Bearer <token>
```

```
{
  "items": [{ "id": "it_123", "name": "Widget" }],
  "next": "...cursor..."
}
```

Error surface

```
{
  "error": {
    "code": "rate_limited",
    "retry_after_sec": 30
  }
}
```

Deploy & Export

```
# Install marp-cli (once)
npm i -g @marp-team/marp-cli

# Live preview
yarn marp --server slides.md

# Export formats
marp slides.md --html --output slides.html
marp slides.md --pdf  --output slides.pdf
marp slides.md --pptx --output slides.pptx
```

Notes: - Ensure `assets/` is checked in so background images render in all outputs. - Use CI to publish HTML slide to GitHub Pages on every push.

Theming Cheatsheet

Use slide-scoped directives for fine control:

<!-- _class: tight -->

- `<!-- _class: lead -->` → centered hero slide
- `<!-- color: white -->` or `<!-- backgroundColor: #111827 -->`
- `<!-- backgroundImage: assets/bg-architecture.jpg -->`
- Per-slide footer: `<!-- footer: "© 2025 Your Co." -->`

Roadmap & Next Steps

1. Harden SLOs and budgets per service
2. Document failure drills & runbooks
3. Add load profiles + capacity plans

Questions?
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