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Singidunum

Process of Migrating Single Page Applications to Meta Frameworks Like Nuxt

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Introduction

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- Modern Vue 3 + TypeScript SPA fetches data via Axios and handles routing/client logic entirely in-browser
- Challenges: poor SEO/crawling, slower first-load performance, manual meta/routing management, no native server or edge support
- Migrating to Nuxt 3 adds SSR, automatic meta/routing, performance/SEO gains, and edge/serverless deployment via Nitro



Key Benefits of Nuxt 3

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- Built-in Server-Side Rendering (SSR) & Static Generation (SSG)
- File-Based Routing (automatic route generation)
- *useHead()* for Declarative Meta/Headers
- Unified development experience (frontend + backend functions)



SSR & SEO Improvements

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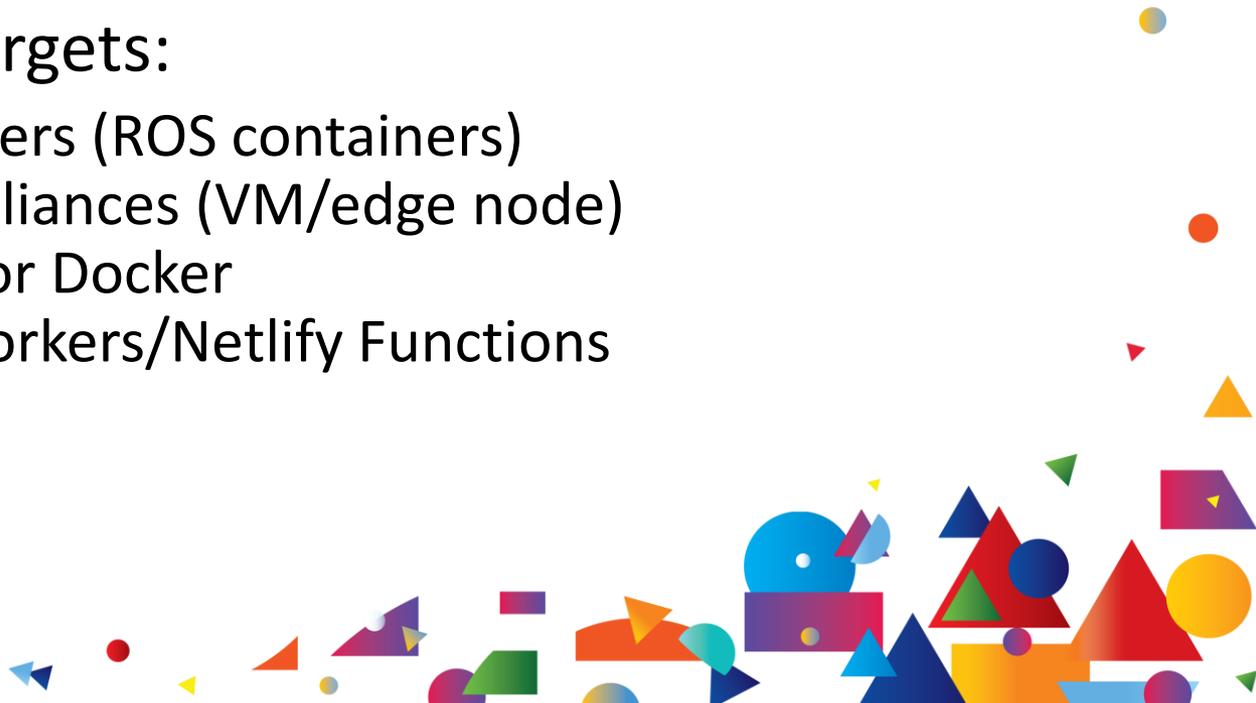
- Actual support for per page SEO
- Measurable impact on crawl rates, indexing speed, and Lighthouse SEO scores
- Dynamic Open Graph/Twitter Card generation via `useHead()`



Nitro Server & Edge Deployment

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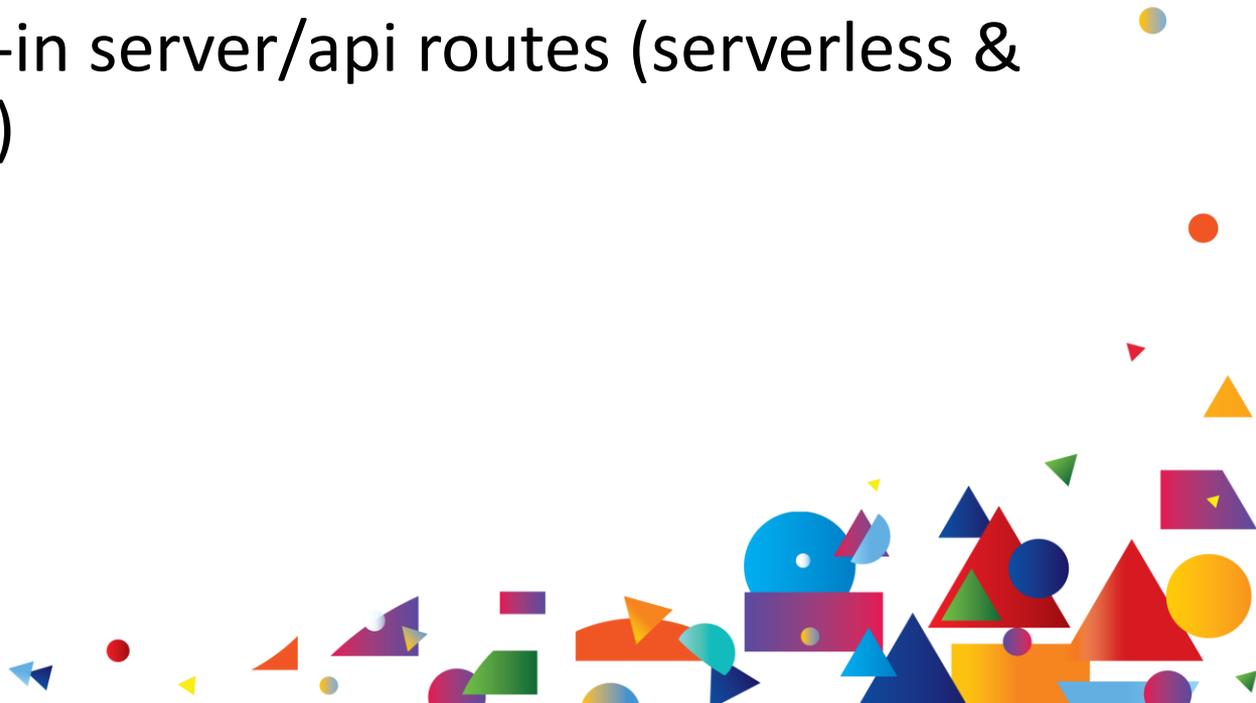
- What is Nitro? Lightweight, universal runtime for Node, Deno, Cloudflare Workers, etc.
- Edge computing advantages: reduced latency, on-device SSR/proxying
- Deployment targets:
 - MikroTik routers (ROS containers)
 - FortiGate appliances (VM/edge node)
 - pfSense jails or Docker
 - Cloudflare Workers/Netlify Functions



API Backend Integration Options

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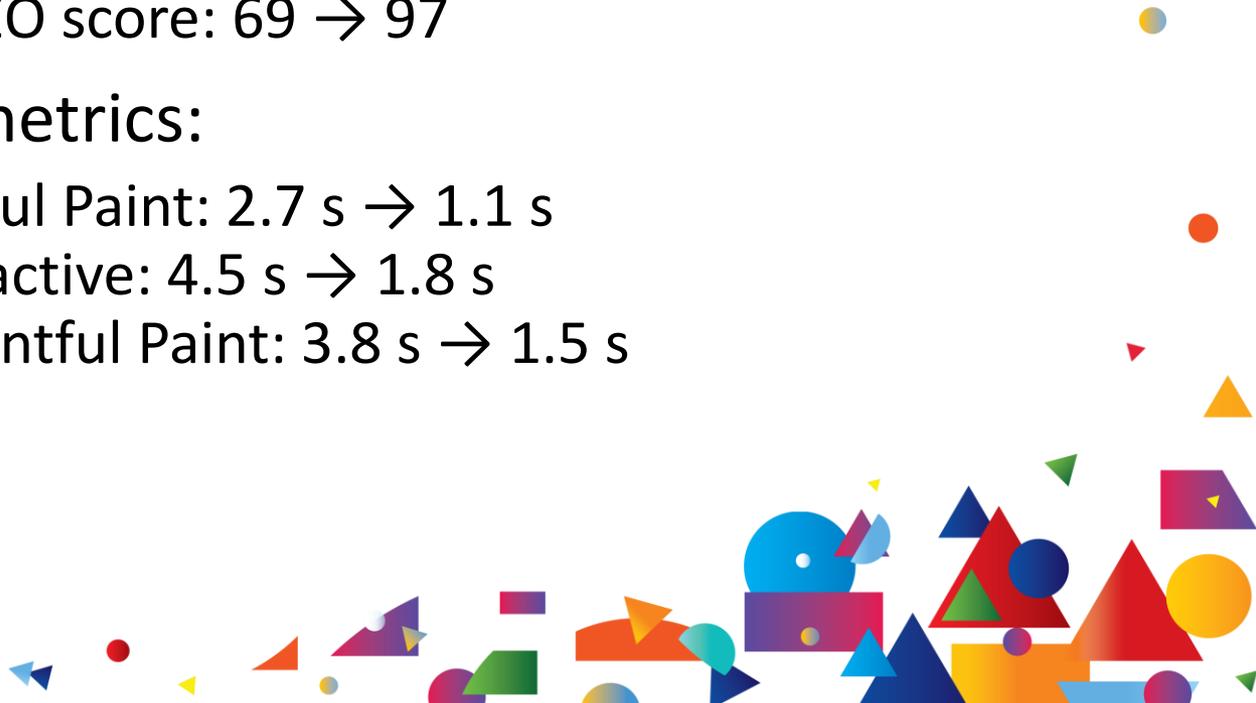
- Option 1: Global Axios configuration in `nuxt.config.ts` (SSR + client)
- Option 2: `useFetch()` composable (unified data fetching, caching, hydration)
- Option 3: Built-in `server/api` routes (serverless & JAMstack style)



Case Study: Migration Results

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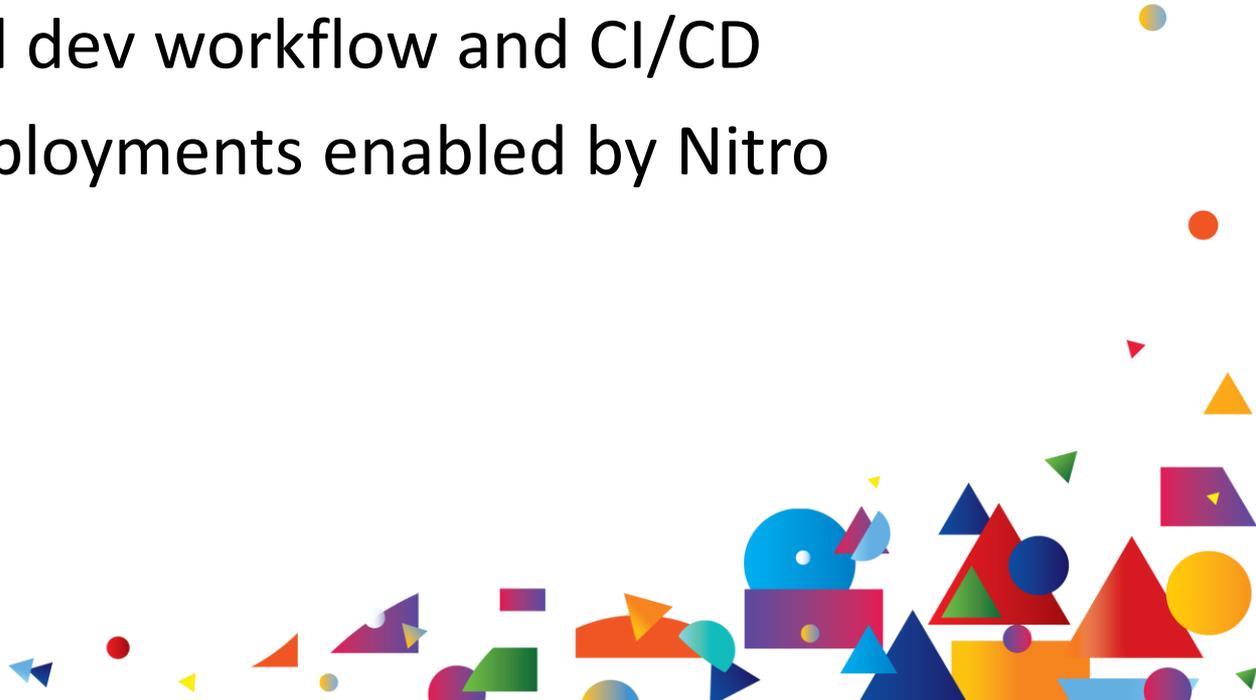
- Baseline: Vue 3 + Axios SPA → Nuxt 3 migration steps
- SEO gains:
 - Indexed pages: 63% → 100% in 48 h
 - Lighthouse SEO score: 69 → 97
- Performance metrics:
 - First Contentful Paint: 2.7 s → 1.1 s
 - Time to Interactive: 4.5 s → 1.8 s
 - Largest Contentful Paint: 3.8 s → 1.5 s



Developer Productivity & Deployment Gains

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- Reduced boilerplate through file-based routing and useHead()
- Unified codebase for frontend + backend (server/api)
- Simplified local dev workflow and CI/CD
- Edge-ready deployments enabled by Nitro



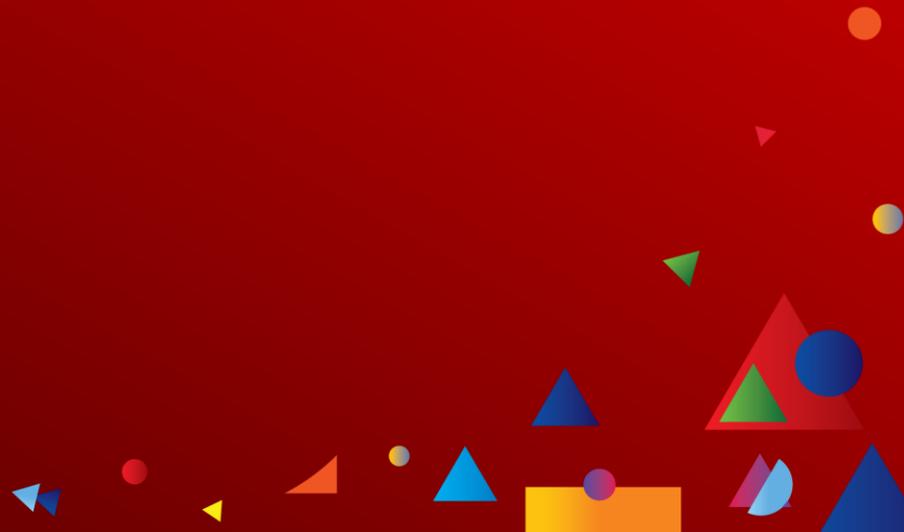
Conclusion

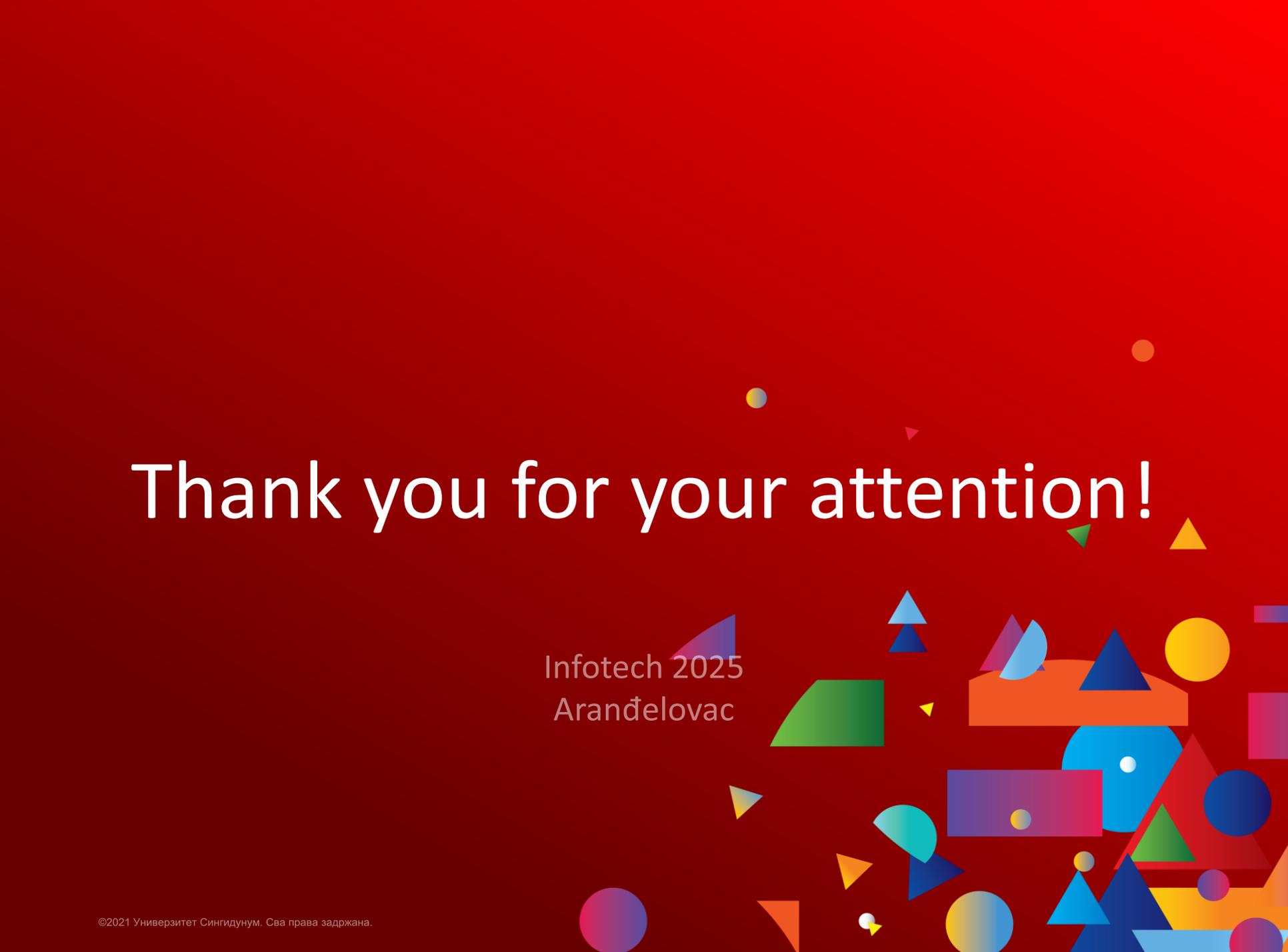
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- Nuxt 3 migration delivers measurable performance, SEO, and UX improvements, plus edge/serverless deployment capabilities
- Reuse of existing Vue Components
- NuxtUI Integration



Questions?





Thank you for your attention!

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