Fabric & TurboModules in React Native (New Architecture)

# Overview

React Native’s new architecture introduces Fabric and TurboModules, which are fundamental upgrades to the rendering and module systems. These changes bring native-like performance, lower memory usage, and more seamless integration between JavaScript and native components.

# 1. Fabric: Deeper Integration with Native Views

Fabric is the new rendering engine that enables synchronous layout, concurrent rendering, and better integration with native UI systems.

Key benefits:

- Synchronous rendering pipeline  
- Concurrent UI rendering support (React 18+)  
- Improved support for gestures and layout  
- Better debugging and dev tooling with Flipper integration

Example usage of a native component with Fabric:

import { requireNativeComponent } from 'react-native';  
  
const MyNativeView = requireNativeComponent('MyNativeView');  
  
export default function App() {  
 return <MyNativeView style={{ flex: 1 }} />;  
}

# 2. TurboModules: Faster Communication Between JS and Native

TurboModules replace the legacy bridge-based communication with a new JSI-based system. They allow for lazy-loading and synchronous calls across the JS-native boundary, boosting performance.

Benefits of TurboModules:

- Bridge-less communication (via JSI)  
- Lazy loading of native modules (on-demand)  
- Type-safe via codegen  
- Higher performance and lower memory usage

Example of declaring a TurboModule interface:

interface MyTurboModule extends TurboModule {  
 greet(name: string): string;  
}

Accessing a TurboModule in JS:

import { TurboModuleRegistry } from 'react-native';  
  
const MyModule = TurboModuleRegistry.getEnforcing<MyTurboModule>('MyModule');  
console.log(MyModule.greet('World'));

# 3. Why This Matters in 2025

With React Native's new architecture (Fabric + TurboModules), apps can achieve near-native performance, smoother UI transitions, and a more scalable codebase. These technologies are essential for teams building modern, high-performance applications in 2025 and beyond.