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CDK Handler Gap Analysis

Generated: 2026-01-19

Purpose: Audit of Lambda handlers vs CDK API Gateway routes

Executive Summary

Category	Handlers in Code	Routed in CDK	Status
admin/*	56	56 via proxy→admin/handler.ts	OK
thinktank/*	29	2 (artifact-engine only)	27 MISSING
thinktank-admin/*	2	1 (via separate stack)	OK
api/*	4	4 (router handles)	OK
Other stacks	~50	~50	OK

Architecture Overview

How Admin Routes Work

```
API Gateway /api/v2/admin/*
    ↓ (proxy)
admin/handler.ts (CDK: admin/handler.handler)
    ↓ (dynamic import based on path)
admin/consciousness.ts, admin/ego.ts, admin/metrics.ts, etc.
```

The admin proxy correctly routes to `admin/handler.ts`, which uses dynamic imports to delegate to 50+ sub-handlers. **This is working correctly.**

How Think Tank Routes Work

```
API Gateway /api/v2/thinktank/artifacts/*
  ↓ (proxy)
thinktank/artifact-engine.ts (CDK routes exist)
```

```
API Gateway /api/v2/thinktank/* (other paths)
  ↓
NO CDK ROUTES - handlers exist but aren't exposed
```

Problem: 27 Think Tank handlers exist in code but have no CDK API Gateway routes.

Missing Think Tank Routes

Priority 1 - Core Think Tank Features (No CDK Routes)

Handler	Purpose	CDK Status
thinktank/conversations.ts	Conversation CRUD	Missing
thinktank/users.ts	User management	Missing
thinktank/models.ts	Model listing	Missing
thinktank/brain-plan.ts	AGI Brain Plan API	Missing
thinktank/user-context.ts	Persistent context	Missing
thinktank/domain-modes.ts	Domain mode config	Missing
thinktank/model-categories.ts	Model categories	Missing
thinktank/ratings.ts	User ratings	Missing

Priority 2 - Advanced Features (No CDK Routes)

Handler	Purpose	CDK Status
thinktank/grimoire.ts	Procedural memory	Missing
thinktank/economic-governor.ts	Cost optimization	Missing
thinktank/time-travel.ts	Time Machine	Missing
thinktank/council-of-rivals.ts	Mutis-model consensus	Missing
thinktank/concurrent-execution.ts	Parallel tasks	Missing
thinktank/structure-from-shaders.ts	Shaders engine	Missing
thinktank/sentinel-agents.ts	Background agents	Missing
thinktank/flash-facts.ts	Quick facts	Missing

Priority 3 - Specialized Features (No CDK Routes)

Handler	Purpose	CDK Status
thinktank/liquid-interface.ts	Adaptive UI	Missing
thinktank/reality-engine.ts	Reality testing	Missing
thinktank/security-signals.ts	Security indicators	Missing
thinktank/policy-framework.ts	Policy management	Missing
thinktank/derivation-history.ts	Derivation tracking	Missing

Handler	Purpose	CDK Status
thinktank/enhanced-collaboration.ts	Team features	Missing
thinktank/file-conversion.ts	File processing	Missing
thinktank/ideas.ts	Idea management	Missing

Already Routed

Handler	Purpose	CDK Status
thinktank/artifact-engine.ts	UI artifacts	api-stack.ts
thinktank/analytics.ts	Usage analytics	thinktank-admin-api-stack.ts
thinktank/settings.ts	Status/config	thinktank-admin-api-stack.ts
thinktank/my-rules.ts	User rules	thinktank-admin-api-stack.ts
thinktank/shadow-testing.ts	A/B testing	thinktank-admin-api-stack.ts

Recommended Solution

Option A: Consolidated Think Tank Router (Recommended)

Create a single `thinktank/handler.ts` that routes to all Think Tank handlers, similar to `admin/handler.ts`:

```
// thinktank/handler.ts
export async function handler(event) {
  const path = event.path;
  if (path.includes('/conversations')) return (await import('../conversations.js')).handler(event);
  if (path.includes('/users')) return (await import('../users.js')).handler(event);
  // ... etc
}
```

Then add single CDK route:

```
const thinktankRouter = v2.addResource('thinktank');
thinktankRouter.addProxy({
  defaultIntegration: new apigateway.LambdaIntegration(thinktankLambda),
  ...
});
```

Option B: Individual Lambda Integrations

Add each handler as a separate Lambda with proxy route. **Not recommended** - would add ~100+ resources to already large stack.

Implementation Checklist

- Create `thinktank/handler.ts` consolidated router
- Add dynamic imports for all 29 Think Tank handlers
- Add CDK route in `api-stack.ts` with proxy
- Test all routes work
- Update this document

Related Files

- CDK Stacks: `packages/infrastructure/lib/stacks/*.ts`
- Lambda Handlers: `packages/infrastructure/lambda/`
- Admin Router: `packages/infrastructure/lambda/admin/handler.ts`
- Think Tank Admin Stack: `packages/infrastructure/lib/stacks/thinktank-admin-api-stack.ts`

Policy Reference

See `/.windsurf/workflows/cdk-infrastructure-sync.md` for CDK update policy.