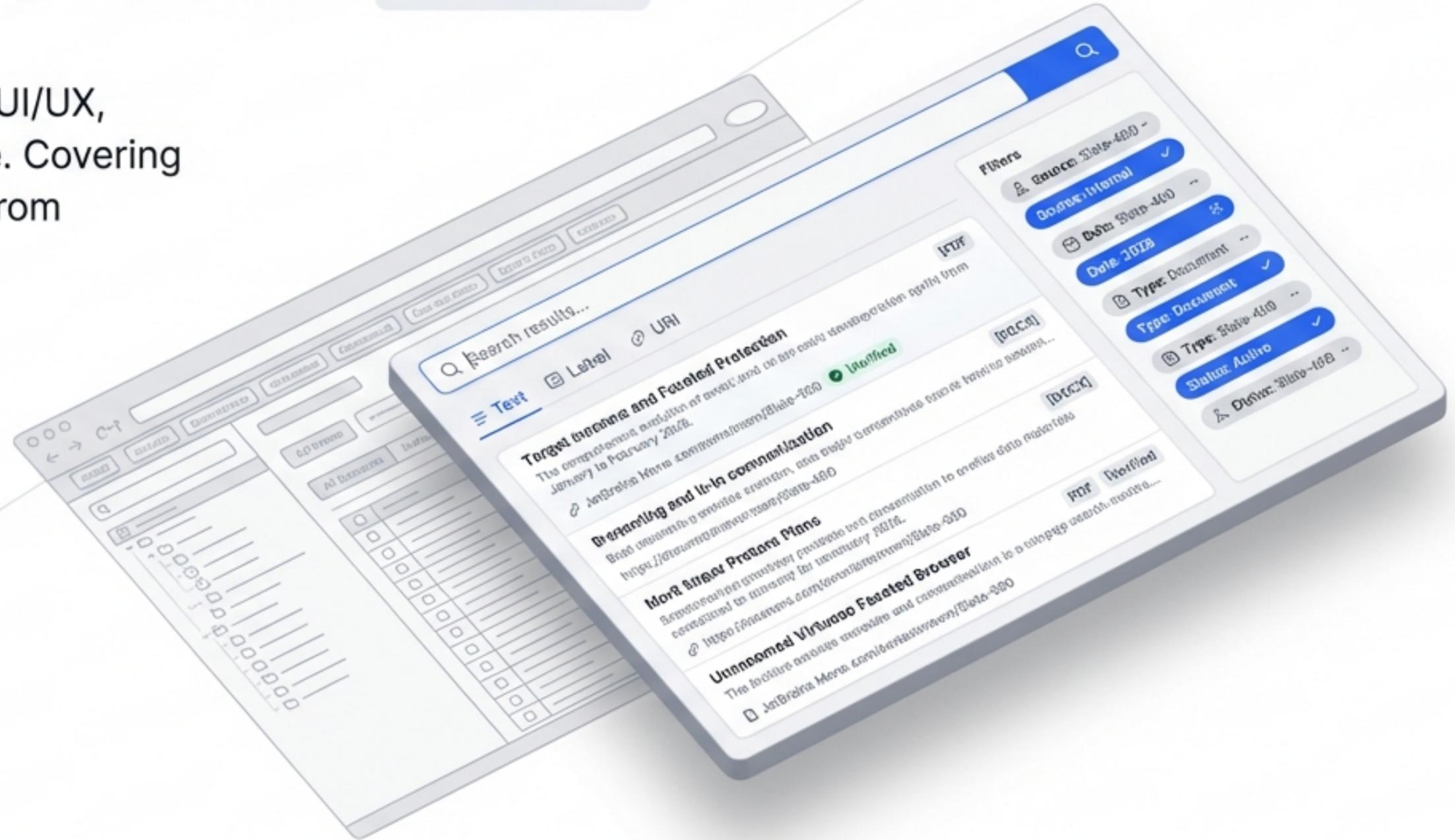# Virtuoso Faceted Browser

The 2026 Modernization Initiative v1.18 → v1.89

A comprehensive evolution of UI/UX,
Architecture, and Performance. Covering
the rapid development sprint from
January to February 2026.

Transforming Legacy Debt into Modern Performance

Core Philosophy: Progressive enhancement, semantic HTML5, and a native browser stack.

700KB+
Payload Reduction

Achieved via complete removal of jQuery and OAT Toolkit dependencies.

WCAG 2.1 AA
Compliance Achieved

Rigorous contrast updates and focus management implementation.

Zero-Dependency
Modern Architecture

Transition to ES6 Modules, Fetch API, and Native DOM APIs.

Eliminating Dependencies & Technical Debt

Legacy Stack (v1.17)

XHTML 1.0 Strict

~~jQuery 1.12.3 & 3.6.3~~

~~OAT Toolkit & jQuery UI~~
Bloated

OAT.AJAX

Refactor & Modernization →

Modern Stack (v1.89)

HTML5 Semantic Elements
`<header>`
`<nav>`
`<main>`

ES6 Modules
`core.js`
`state.js`
`api-client.js`

Native DOM & Fetch API
Zero External Deps

Modular CSS Architecture
`modern-variables`
`modern-base`
`modern-components`

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Establishing a Scalable Design System

The Slate Palette

Slate-50	Slate-100	Slate-200	Slate-300	Slate-400	Slate-500	Slate-600 (Primary)	Slate-700	Slate-800	Slate-900

Standardized color scale replacing ad-hoc hex codes.

Native Dark Mode

Light Mode

Card Title

This is a sample component displaying content in light mode.

Dark Mode

Card Title

This is a sample component displaying content in dark mode.

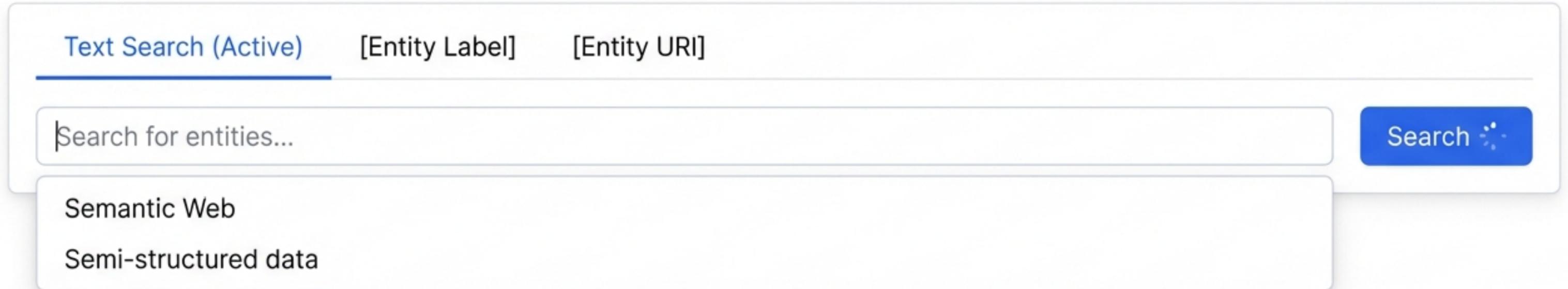## Typography & Iconography

Inter (Sans-serif)

Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 0 1 2 3 4 5 6 7 8 9
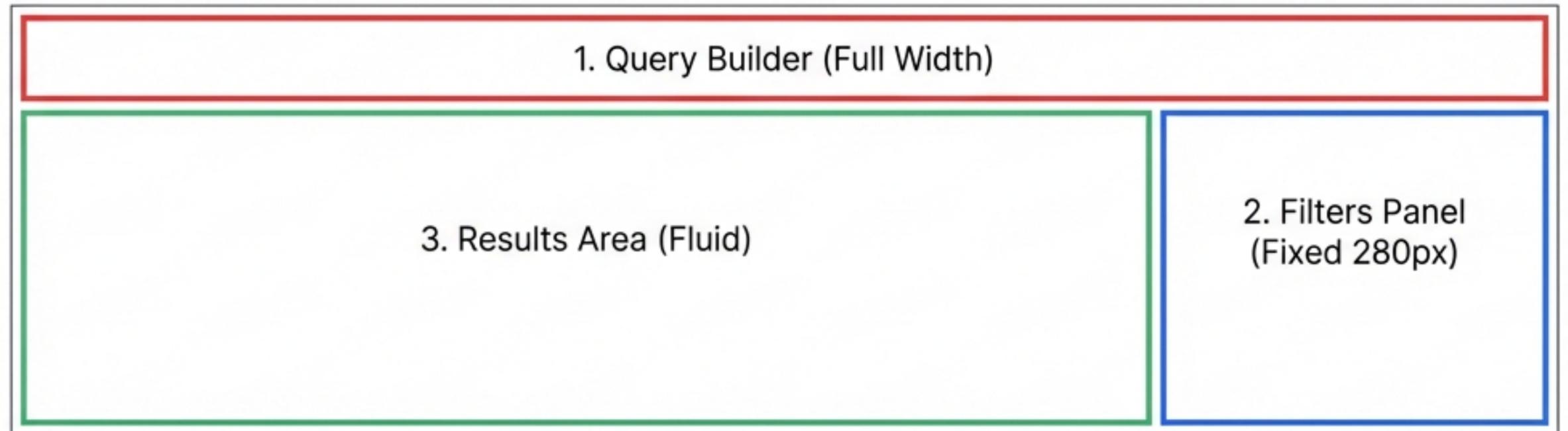
Semantic Icons replacing text labels.

```css
@media (prefers-color-scheme: dark) {
  :root {
    --background: var(--slate-900);
    --text-primary: var(--slate-50);
    --text-secondary: var(--slate-300);
  }
}
```

Streamlining Search and Discovery

Text Search (Active)   [Entity Label]   [Entity URI]

Search for entities...   Search

Semantic Web

Semi-structured data

New Unified Search Header

1. Query Builder (Full Width)

3. Results Area (Fluid)

2. Filters Panel
(Fixed 280px)

Inter, and Slate-900,
JetBrains Mono

The Trinity Layout (CSS Grid)

Professional-Grade Data Presentation

Enhancing the Spreadsheet Component

ID	Entity Label		URI	Status	Created	Actions
001	Semantic Web Project		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete
002	Semantic Web API		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete
003	Semantic Project		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete
004	Semantic Web Project		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete
005	Semantic Project		http://	Active	2023-10-27	Edit / Delete
006	Semantic Project		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete
007	Semantic Web		http://www.w3.org/1999/02...	Active	2023-10-27	Edit / Delete

Smart Resizing & Ghost Guides

http://www.w3.org/1999/02/22-rdf-syntax-ns#type

Defaults reduced to 175px (50% density increase)

Intelligent Truncation Tooltips

Drag & Drop

Component spec: `DataGrid v2.1` | `density='compact'` | `leftAligned=true` | `resizable=true` | `draggable=true`

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Restructuring the Entity Profile

The /describe Page Overhaul

Action Controls	[Permalink] [Export] [Settings]

About Section

Entity Name

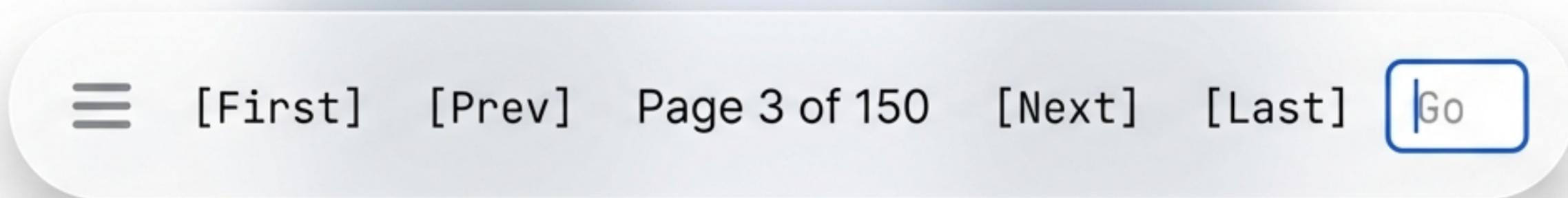Context Controls

Type ⇅   New Facet

Synopsis / Abstract

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco bers nisl ut aliquip ex ea commodo consequat. Read more

Attributes

Property	Value
Created Date	2023-10-27
Status	Active
Description	A detailed project overview — A detailed project overview in ...
Author	Engineering Team
Property	Value

- **Logical Grouping:** Metadata nested within context.

- **Overflow Handling:** Synopsis text contained in `div.desc-synopsis`.

- **Layout Fix:** Removed legacy float properties for solid alignment.

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Intelligent Navigation & Flow

[First]   [Prev]   Page 3 of 150   [Next]   [Last]   Go

Sticky Persistence

Draggable control bar that stays in viewport.

Logic Repair

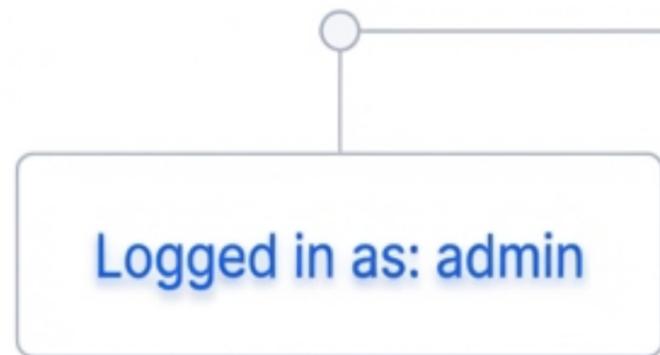Fixed 'Page 1 of 2' ghost bugs. Uses ceiling division logic.

Unified Design

Identical implementation across Facet and Describe views.
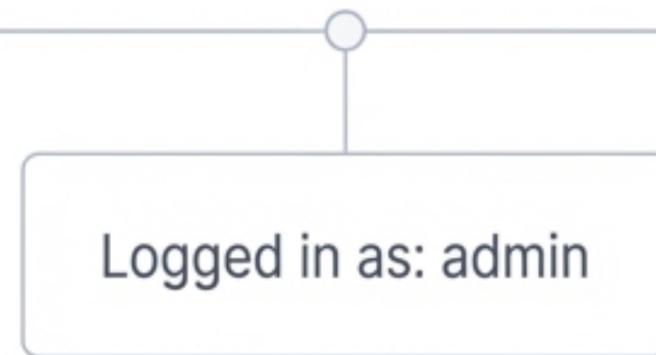
Micro-Study: The Evolution of "Login Status"
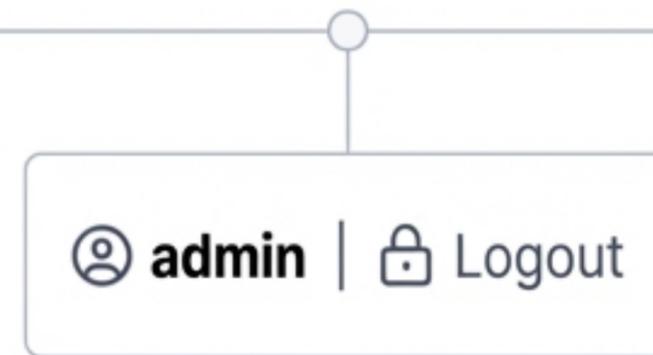
Attention to detail in a single component.

Step 1	Step 2	Step 3	Step 4
Legacy	Cleanup	Iconography	Accessibility (Final)

Logged in as: admin

Logged in as: admin

admin | Logout

admin | Logout

Blurry text shadow, primary blue color, text-only.
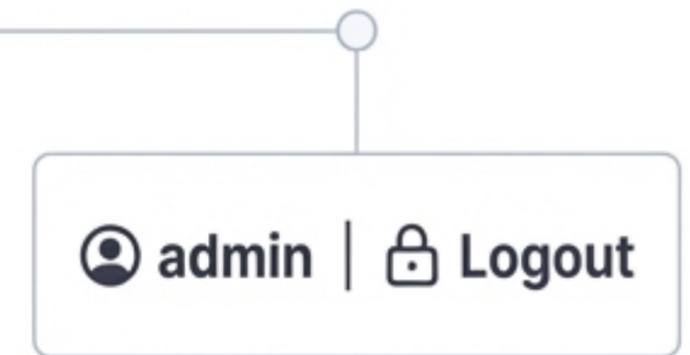
Removed text-shadow. Color changed to Slate-600 to match header.

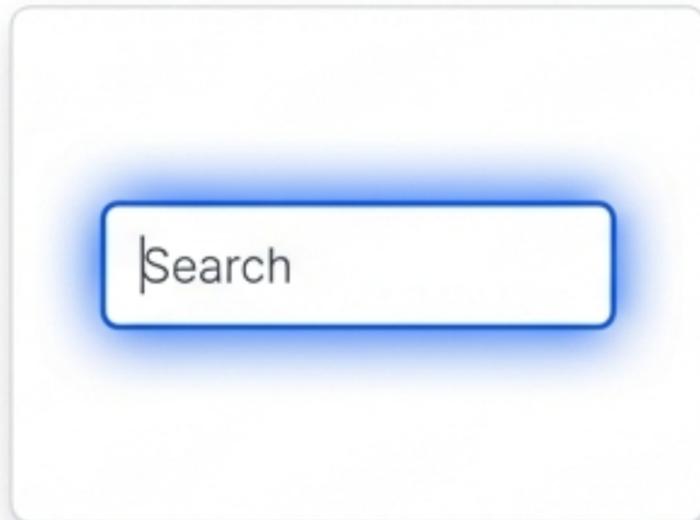Replaced text labels with semantic Font Awesome icons.

Contrast ratio bumped to 15.8:1 (Slate-800). Added hover states.
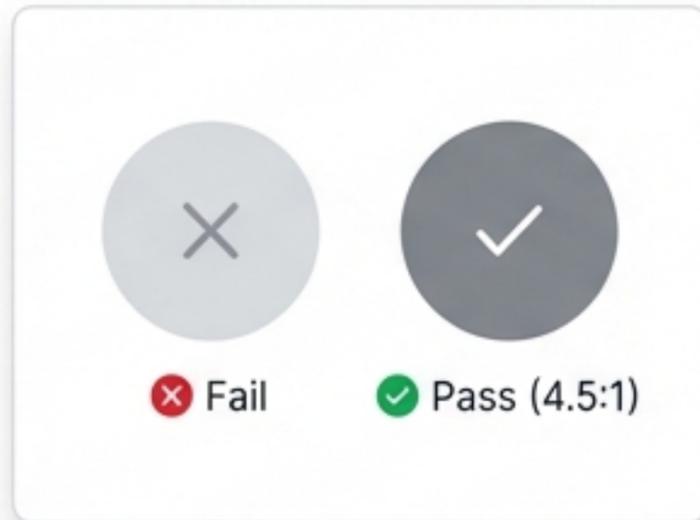
Accessibility (a11y) & Usability Standards

WCAG 2.1 AA Compliant

Focus Management

Search

High-visibility keyboard focus rings.

Contrast Upgrade

❌ Fail   ✅ Pass (4.5:1)
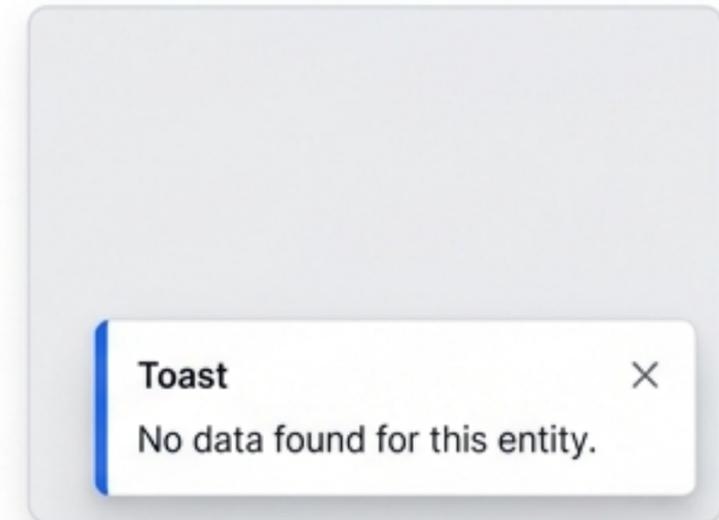
Darkened disabled states for readability.

Semantic Roles

```
<div role="navigation"
aria-label="Pagination">
  <div role="tablist">
```

ARIA attributes for screen readers.

Feedback Loops

Toast   ✕
No data found for this entity.

Toast notifications replacing silent failures.

Phase 4: The REST API V1

Parallel JSON pipeline for programmatic access.

Capabilities List

- Session Management (Create/Update/Delete)
- Faceted Search Execution
- Interoperability (CORS Support)
- Client Library: FacetAPI class

Visual Code Evidence

```json
{
  "status": "success",
  "data": {
    "sid": "c9f2...a1b",
    "facets": [
      { "id": "type", "count": 42 }
    ],
    "results": [
      { "uri": "http://dbpedia.org/resource/Virtuoso" }
    ]
  }
}
```

Developer Experience & Tooling

```
> testFctDescriptionScript()
  ✅ Description script loaded successfully.


> testThemeToggle()
  ℹ️ Toggling theme to: dark
  ℹ️ Toggling theme to: light
```

Developer Tools

Console Utilities

Global test functions exposed for **rapid** in-browser **verification**.

Robust Initialization

Retry logic & `DOMContentLoaded` guards to prevent race conditions.

Error Handling

Graceful catching of null references to prevent UI freezing.

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The Modernization Impact

Summary of Transformation (v1.17 vs v1.89)

Legacy (v1.17)	Modern (v1.89)
Fixed Width / Rigid Layouts	Fluid / Responsive / Grid
Heavy jQuery & OAT Dependencies	Vanilla JS / Native Modules / REST API
Inconsistent Ad-hoc Colors	Slate Design System
Text-based Navigation	Icon-based / Tabbed Navigation
Silent Failures	Toast Notifications & Feedback

The Virtuoso Faceted Browser is no longer just a functional utility; it is a professional-grade interface ready for the next generation of semantic data.

Virtuoso Faceted Browser

v1.89

Released February 2026