**Product Requirements Document: Google Ads KPI MCP Server Prototype (Enhanced for Artifacts)**

This document outlines the requirements for the Google Ads KPI MCP server prototype, with a specific focus on enabling business data visualizations within Claude Artifacts. It distinguishes between the goals and functionalities for the initial prototype and potential future enhancements.

**1. Introduction:**

* **For Now (Prototype):** This document defines the requirements for a prototype server that utilizes the Model Context Protocol (MCP) to provide key Google Ads performance indicators (KPIs) to Claude Desktop. The primary goal is to demonstrate the feasibility of serving structured Google Ads data to an LLM for enhanced understanding and context.
* **Future Plans (Iteration & Enhancement):** Future iterations will focus on enhancing the data provided and leveraging Claude Artifacts to render this data as interactive and insightful business visualizations, directly within the Claude Desktop environment.

**2. Goals:**

* **For Now (Prototype):**
  + Successfully implement an MCP server capable of retrieving account-wide Google Ads cost and conversion KPIs.
  + Enable basic segmentation of this data by campaign type, name, and label.
  + Allow for period-over-period comparison of these KPIs.
  + Demonstrate the ability to serve this structured data to Claude Desktop via the MCP protocol.
* **Future Plans (Iteration & Enhancement):**
  + Enable Claude Artifacts to automatically render various business visualizations (e.g., bar charts, line charts, pie charts) from the data served by the MCP server.
  + Support user interaction with these visualizations within Claude Desktop (e.g., tooltips, zooming, filtering).
  + Allow users to specify preferred visualization types or customize existing ones through natural language prompts within Claude.
  + Expand the range of Google Ads KPIs available for visualization.
  + Potentially integrate data from other sources for more comprehensive visualizations.

**3. Target Audience:**

* **For Now (Prototype):** Internal development teams and stakeholders interested in exploring the potential of LLMs for business intelligence and data analysis within the context of Google Ads.
* **Future Plans (Iteration & Enhancement):** Google Ads advertisers and marketing professionals who want to quickly gain insights from their campaign data through natural language interaction and automated visualizations within Claude Desktop.

**4. Functional Requirements:**

* **For Now (Prototype):**
  + **Account-Wide KPI Report:** The server must be able to retrieve and serve account-level cost and conversion KPIs for a specified date range.
  + **Segmentation:** The server must support segmentation of the KPI data by campaign\_type, campaign\_name, and campaign\_label, with "AND" logic across dimensions and "OR" logic within dimensions.
  + **Comparison:** The server must allow for period-over-period comparison of the KPI data for two specified date ranges, including absolute and percentage change calculations.
  + **MCP Server Interface:** The server must implement the MCP protocol to receive requests from Claude Desktop and respond with the requested data in a structured format (as defined in the initial PRD).
  + **Data Format for Claude:** The data served via MCP should be structured in a way that Claude Desktop can readily parse and utilize for rendering visualizations using the frameworks outlined in the "Business Data Visualization Framework Guide for Claude Artifacts." This will likely involve clear naming conventions for data fields (e.g., "month," "revenue," "conversions") that align with common visualization library expectations.
* **Future Plans (Iteration & Enhancement):**
  + **Visualization Data Endpoints:** The MCP server will be enhanced to provide data specifically formatted for different visualization types, potentially including metadata about suggested chart types based on the data.
  + **Support for Visualization Libraries:** The backend will need to ensure the data served is compatible with the JavaScript/React-based visualization libraries available within Claude Artifacts (e.g., Recharts, Chart.js).
  + **Metadata for Visualization:** The MCP response might include metadata specifying data types, units, and suggested chart types to guide Claude's rendering of visualizations.
  + **User-Driven Visualization Configuration:** The server might need to interpret natural language commands from Claude related to visualization preferences (e.g., "show me a bar chart," "color the bars blue").
  + **Expanded KPI Support:** The range of available Google Ads KPIs will be expanded to include metrics relevant for a wider variety of visualizations (e.g., impressions, clicks, CTR).

**5. Non-Functional Requirements:**

* **Performance:**
  + **For Now (Prototype):** The server should provide reasonably fast response times for the targeted data volumes during internal testing. Caching will be implemented to improve performance for repeated requests.
  + **Future Plans (Iteration & Enhancement):** Response times should be optimized for a larger user base and potentially larger datasets. Scalable caching mechanisms and database solutions will be necessary.
* **Scalability:**
  + **For Now (Prototype):** The prototype will be designed for a limited number of internal users and smaller data volumes.
  + **Future Plans (Iteration & Enhancement):** The backend architecture should be scalable to handle a significant number of concurrent users and large Google Ads accounts with substantial amounts of data.
* **Security:**
  + **For Now (Prototype):** Basic security measures will be implemented, such as secure handling of API credentials (using environment variables).
  + **Future Plans (Iteration & Enhancement):** Robust security measures, including secure secrets management, secure communication protocols, and potentially user authentication and authorization, will be critical.
* **Visualization Capabilities:**
  + **For Now (Prototype):** The primary focus is on serving structured data that *can* be visualized by Claude Artifacts. The prototype might include basic validation that the data format is compatible with common charting libraries.
  + **Future Plans (Iteration & Enhancement):** The server will be actively designed and tested to ensure seamless integration with Claude Artifacts' visualization rendering capabilities. This will involve careful consideration of data formats, library compatibility, and potential performance implications of rendering complex visualizations.

**6. Out of Scope:**

* **For Now (Prototype):** All items listed in the initial PRD's "Out of Scope" section remain out of scope. Additionally, the automatic rendering of complex or highly customized visualizations within Claude Artifacts is likely out of scope for the initial prototype, focusing instead on providing the necessary data in a suitable format.
* **Future Plans (Iteration & Enhancement):** While the goal is to enable rich visualizations, certain highly specialized or niche visualization types might remain out of scope initially. Integration with visualization libraries beyond those explicitly supported by Claude Artifacts might also be out of scope for the near future.

**7. Success Metrics:**

* **For Now (Prototype):**
  + Successful implementation of the MCP server with the core functional requirements (account-wide KPIs, segmentation, comparison).
  + Accurate retrieval of Google Ads data.
  + Successful serving of structured data to Claude Desktop via the MCP protocol.
  + Demonstration of basic visualization rendering within Claude Artifacts using the data served by the prototype (even if limited to a few basic chart types).
* **Future Plans (Iteration & Enhancement):**
  + High adoption and positive user feedback on the visualization capabilities within Claude Desktop.
  + Performance benchmarks for visualization rendering within acceptable limits.
  + Support for a wide range of common business visualization types.
  + Ability for users to customize visualizations through natural language prompts.

**8. Release Criteria:**

* **For Now (Prototype):**
  + Completion of all "For Now" functional requirements.
  + Successful internal testing and validation of data accuracy.
  + Basic demonstration of data being rendered as visualizations within Claude Artifacts.
  + Documentation of the prototype architecture and usage.
* **Future Plans (Iteration & Enhancement):**
  + Successful implementation of the targeted visualization features.
  + Thorough testing across various Google Ads accounts and data scenarios.
  + Comprehensive user documentation and support materials for the visualization capabilities.
  + Achievement of defined performance and scalability targets.

**9. Future Considerations:**

* **For Now (Prototype):** Focus on building a solid foundation for data retrieval and serving.
* **Future Plans (Iteration & Enhancement):**
  + Explore advanced visualization libraries and techniques within the Claude Artifacts framework.
  + Investigate opportunities for AI-driven visualization recommendations based on the data.
  + Consider allowing users to save and share their created visualizations.
  + Potentially integrate with other Google Ads reporting features or third-party analytics platforms to enrich the visualization possibilities.

This enhanced PRD provides a roadmap for the Google Ads KPI MCP server prototype, explicitly incorporating the goal of enabling business data visualizations within Claude Artifacts. It outlines the necessary steps for the initial prototype while keeping the future vision of interactive and user-driven data visualization in mind.