**Lesson on Neon Architecture and Ontology in Comcast**

**Introduction**

**Overview of Teams and Frameworks**

**Current Team Structure**

* **Gateway Team**: Framework and ingest.
* **Consolidation Efforts**: Discussion on merging various agents under a unified system.

**Introduction to Neon**

* **Definition**: Neon is a new architecture aimed at consolidating multiple entertainment agents.
* **Acronym**: New Entertainment Ontology NLP (Natural Language Processing).

**Objectives of Neon Architecture**

**Entertainment Agent Consolidation**

* **Unified Agent**: Combining TV, sports, home, Sky (UK, Europe), and other entertainment services into one agent.
* **Purpose**: Reduce redundancy and improve efficiency.

**Ontology Standardization**

* **Old System**: Multiple agents with different intents and configurations.
* **New System**: Unified ontology with standardized intents and configurations.

**Detailed Breakdown of Neon Architecture**

**Ontology and Intents**

* **Previous Structure**: Different agents had varied intents (e.g., "chat", "Deep Link", "menu").
* **New Structure**: Unified intents under a common ontology (e.g., "go to" with metadata indicating the specific content type).

**Technical Components**

* **Logical Forms**: Transition from agent-specific processing to a unified processing system.
* **Microservices**: Introduction of a consolidated service called Gateway, which handles all speech and session management.

**Machine Learning Integration**

* **Current System**: Manual addition of synonyms and patterns.
* **Neon System**: Automated learning and annotation to improve response accuracy without manual intervention.

**System Architecture**

* **Gateway Service**: Central service handling all requests and distributing them to appropriate agents.
* **Machine Learning**: Enhanced NLP services to automatically learn and adapt to new user queries.

**Transition and Performance**

**Current Transition State**

* **Split Traffic in Production**: Some traffic is routed to the new Neon system, while some still go through the legacy system.
* **Feature Comparison**: Ensuring feature parity between the old and new systems.

**Performance Insights**

* **Latency and Errors**: Monitoring latency and error rates to ensure the new system performs as well as, if not better than, the legacy system.

**Future Plans**

* **Full Deployment**: Plans to fully deploy the new architecture across all data centers and retire the legacy system.

**Consolidation and Scalability**

**Scalability Goals**

* **Expansion Plans**: Incorporate more agents and partners without needing extensive custom logic for each new addition.
* **Unified Ontology**: All new agents must adhere to the standard ontology, simplifying onboarding and maintenance.

**Additional Context and Technical Details**

**Content Discovery and Data Ingestion**

* **FIG Team**: Handles data ingestion and preparation for the new system.
* **Data Enrichment**: Adding more metadata to enhance the richness and utility of the content available.

**Performance Testing**

* **Load Testing**: Ensuring the new NLP services can handle increased traffic from consolidated agents.
* **Feature Complete Deployment**: Full deployment expected to provide the most accurate performance insights.

**Industry Context**

* **Zumo and Zumo Stream Box**: Comcast’s expansion into smart TV technology, branded as Zumo, utilizing the new architecture.

**Lessons Learned**

* **Integration Challenges**: Addressing issues arising from combining multiple legacy systems into a single, unified system.
* **User Experience Improvements**: Enhanced ability to surface content that was previously hard to find.

**Conclusion**

**Summary**

* **Neon Architecture**: A significant step towards a more scalable and efficient system for handling entertainment content.
* **Future Outlook**: Continued refinement and deployment to ensure a seamless transition and improved user experience.