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КАФЕДРА «ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ»

РЕФЕРАТ

на тему

ПРОГРАММНЫЙ КОМПЛЕКС ДЛЯ ИМИТАЦИОННОГО МОДЕЛИРОВАНИЯ РОЖДЕНИЯ Z' - БОЗОНОВ В ПРОТОН-ПРОТОННЫХ СТОЛКНОВЕНИЯХ С УЧЕТОМ ЭФФЕКТОВ Z - Z' СМЕШИВАНИЯ

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ЗАКЛЮЧЕНИЕ

Целью реферата было исследование преимуществ и недостатков ОС *Linux*. Был поставлен ряд задач, которые необходимо было выполнить, для достижения намеченной цели. Если рассмотреть последовательно каждый пункт, то можно сделать вывод, что цель реферата достигнута: дан развернутый ответ на вопрос, что такое *Linux*. Рассмотрена поэтапно история создания ОС *Linux*. Проанализированы сильные и слабые строны современных ОС, а также выявлены основные преимущества и недостатки. Сделаны соответствующие выводы о перспективе развития *Linux*.

Во второй главе реферата рассмотрен процесс рождения Z' бозонов в протон-протонных столкновениях с учётом эффектов Z-Z' смешивания. Рассмотрены интурменты библиотеки *PYTHIA* для имитационного моделирования процессов взаимодействия элементарных частиц при высоких энергиях. Исследован процесс рождения Z'-бозонов в процессе $pp \to Z' \to l^+l^- + X$ с учетом эффектов Z–Z' смешивания.

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ПРИЛОЖЕНИЕ

BI&A 1.0

As a data-centric approach, BI&A has its roots in the longstanding database management field. It relies heavily on various data collection, extraction, and analysis technologies (Chaudhuri et al. 2011; Turban et al. 2008; Watson and Wixom 2007). The BI&A technologies and applications currently adopted in industry can be considered as BI&A 1.0, where data are mostly structured, collected by companies through various legacy systems, and often stored in commercial relational database management systems (RDBMS). The analytical techniques commonly used in these systems, popularized in the 1990s, are grounded mainly in statistical methods developed in the 1970s and data mining techniques developed in the 1980s. Data management and warehousing is considered the foundation of BI&A 1.0. Design of data marts and tools for extraction, transformation, and load (ETL) are essential for converting and integrating enterprise-specific data. Database query, online analytical processing (OLAP), and reporting tools based on intuitive, but simple, graphics are used to explore important data characteristics. Business performance management (BPM) using scorecards and dashboards help analyze and visualize a variety of performance metrics. In addition to these well-established business reporting functions, statistical analysis and data mining techniques are adopted for association analysis, data segmentation and clustering, classification and regression analysis, anomaly detection, and predictive modeling in various business applications. Most of these data processing and analytical technologies have already been incorporated into the leading commercial BI platforms offered by major IT vendors including Microsoft, IBM, Oracle, and SAP (Sallam et al. 2011). Among the 13 capabilities considered essential for BI platforms, according to the Gartner report by Sallam et al. (2011), the following eight are considered BI&A 1.0: reporting, dashboards, ad hocquery, search-based BI, OLAP, interactive visualization, scorecards, predictive modeling, and data mining. A few BI&A 1.0 areas are still under active development based on the Gartner BI Hype Cycle analysis for emerging BI technologies, which include data mining workbenchs, column-based DBMS, in-memory DBMS, and realtime decision tools (Bitterer 2011). Academic curricula in Information Systems (IS) and Computer Science (CS) often include well-structured courses such as database management systems, data mining, and multivariate statistics.

BI&A 2.0

Since the early 2000s, the Internet and the Web began to offer unique data collection and analytical research and development opportunities. The HTTP-based Web 1.0 systems, characterized by Web search engines such as Google and Yahoo and e-commerce businesses such as Amazon and eBay, allow organizations to present their businesses online and interact with their customers directly. In addition to porting their traditional RDBMS-based product information and business contents online, detailed and IP-specific user search and interaction logs that are collected seamlessly through cookies and server logs have become a new gold mine for understanding customers' needs and identifying new business opportunities. Web intelligence, web analytics, and the user-generated content collected through Web 2.0-based social and crowd-sourcing systems (Doan et al. 2011; O'Reilly 2005) have ushered in a new and exciting era of BI&A 2.0 research in the 2000s, centered on text and web analytics for unstructured web contents. An immense amount of company, industry, product, and customer information can be gathered from the web and organized and visualized through various text and web mining techniques. By analyzing customer clickstream data logs, web analytics tools such as Google Analytics can provide a trail of the user's online activities and reveal the user's browsing and purchasing patterns. Web site design, product placement optimization, customer transaction analysis, market structure analysis, and product recommendations can be accomplished through web analytics. The many Web 2.0 applications developed after 2004 have also created an abundance of user-generated content from various online social media such as forums, online groups, web blogs, social networking sites, social multimedia sites (for photos and videos), and even virtual worlds and social games (O'Reilly 2005). In addition to capturing celebrity chatter, references to everyday events, and socio-political sentiments expressed in these media, Web 2.0 applications can efficiently gather a large volume of timely feedback and opinions from a diverse customer population for different types of businesses. Many marketing researchers believe that social media analytics presents a unique opportunity for businesses to treat the market as a "conversation" between businesses and customers instead of the traditional business-to-customer, one-way "marketing" (Lusch et al. 2010). Unlike BI&A 1.0 technologies that are already integrated into commercial enterprise IT systems, future BI&A 2.0 systems will require the integration of mature and scalable techniques in text mining (e.g., information extraction, topic identification, opinion mining, question-answering), web mining, social network analysis, and spatial-temporal analysis with existing DBMS-based BI&A 1.0 systems. Except for basic query and search capabilities,

no advanced text analytics for unstructured content are currently considered in the 13 capabilities of the Gartner BI platforms. Several, however, are listed in the Gartner BI Hype Cycle, including information semantic services, natural language question answering, and content/text analytics (Bitterer 2011). New IS and CS courses in text mining and web mining have emerged to address needed technical training.

BI&A 3.0