



NEW CLOUD COMPUTING FRAMEWORK for NATIVE APPLICATIONS

Advanced PDF Generation and Text Encoding Tools

*Biotech/Bioinformatics • Manufacturing/Engineering
Academic Publishing • Real Estate • E-Commerce*

Product Description

LTS has designed a novel cloud computing framework that would enable cloud back-end servers to work more efficiently with desktop-style applications by building versatile and user-friendly native/desktop front ends to seamlessly align with cloud-native back end servers.

This is new because most cloud back-ends are primarily designed for web-based front ends and not native/desktop front ends. However, web-based front ends severely limit the functionality of the desktop-style application: cloud backup and data-sharing are limited because front-end applications are designed as web-based and not in native/desktop format; similarly, the functionality of PDF files and other multimedia applications are limited by web-based front ends.¹

Why is this Important

Given the fact that desktop-style applications (such as PDF files, 3D graphics, medical imaging viewers, and biomedical databases) are the bedrock of many markets (e.g. manufacturing, engineering, bioinformatics, and academic publishing), building a versatile native/desktop front end to exploit the functionality of the desktop application would be a game changer in the software engineering industry.

Ideology

Many of the features of the multimedia resources used in everyday life and in the work/professional sphere — e.g. 3D graphics, biomedical imaging, PDF files, panoramic photography — all run best in the desktop/native software

¹By adding built-in cloud integration to native applications one would have reusable data persistence code libraries and also allow a host of different native applications to interoperate successfully. We promote interoperability by providing a uniquely designed property-hypergraph data representation and text encoding framework.

format. So why not exploit the use of native/desktop front ends in desktop-style applications to make these resources work beyond expectation?

How Does this Work: BIOTECH/ACADEMIC PUBLISHING USE CASE

By pairing cloud back ends to specially designed native/desktop front ends this would enable biomedical datasets to be hosted on cloud services while at the same time making such crucial datasets easily accessible within the software programs that are used in bio-imaging, biological simulations, predictive analytics, as well as other programs that supply R&D tools.

This novel cloud computing framework using native front ends would be a boon to precision medicine and predictive analytics because scientific researchers, medical device manufacturers, and pharmaceutical companies would then be able to seamlessly integrate R&D tools with empirical data, made possible by this seamless pairing of a cloud back end with a native/desktop front end.

For example, native front ends embedded in R&D applications would make it feasible to integrate heterogeneous biomarkers into one common data model — propitious for machine learning algorithms to draw correlations from large pools of data. This would allow predictive algorithms to be validated against datasets derived from sources such as bio-imaging studies and clinical outcomes research, ensuring that predictive models are accurate when translated to clinical practice. Such data-integration R&D tools could, likewise, provide parameters (for instance, proteogenomic models) governing biochemical simulations of tissue growth, which is important for modeling things such as implanted medical devices and the biologic mechanisms of cancer-fighting therapies.

Consequently, new breakthroughs in cancer treatment, cardiac care, and other specialty areas, can be accelerated by this novel technological approach of encasing/wrapping datasets in R&D tools — which can only be facilitated when pairing a native/desktop front end (and not a web-based front end) with a cloud back end server.

Moreover, to allow such scientific advances to be shared more transparently — in concordance with the *FAIRsharing* initiative, the Chan Zuckerberg *Invest in Open Infrastructure* project, and the Bill and Melinda Gates Foundation *Guidelines for Authors* — our text encoding protocol introduces new PDF generation features that allow PDF documents to be rigorously cross-referenced with accompanying data sets. As such, when PDF files are generated with our text-encoding features enabled, PDF viewers can seamlessly download associated data sets from cloud hosting services, and subsequently interoperate with applications used to access and visualize such data sets.

Bettering the Lives of Everyday Users

In addition to the many benefits in the professional/work sphere, the lives of everyday users would be improved: by streamlining online shopping for food and household items, making more efficient use of virtual tours of property listings, and enabling more versatile use of patient web portals for inputting crucial medical history information, such as describing the nature/intensity of one's symptoms in trying to get proper medical redress from an overburdened health care system that severely limits the time spent with each patient.