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New Features, New Architecture, New R&D, and a New Era of Contribution — Postprint of Notes on the Construction of Xinhua News Agency’s New Contribution Platform

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Date: 2023-10-08T00:00:00+00:00

Abstract

The concept of “news wire services” has evolved dramatically since the London Morning Advertiser became Reuters’ first newspaper client in 1858, establishing a model that would become the primary channel for global media organizations to acquire information. In November 1931, the nascent Red China News Agency transmitted the voices of the Party and the provisional central Soviet government via radio waves to revolutionary areas across the nation, representing the earliest prototype of proletaria...

Full Text

Historical Evolution and Project Background

The concept of “news wire services” has evolved dramatically since the London *Morning Advertiser* became Reuters’ first newspaper client in 1858, establishing a model that would become the primary channel for global media organizations to acquire information. In November 1931, the nascent Red China News Agency transmitted the voices of the Party and the provisional central Soviet government via radio waves to revolutionary areas across the nation, representing the earliest prototype of proletarian news dissemination. By December 1985, Xinhua’s Chinese-language computer dispatch system marked China’s transition from 1950s-era template transmission to computerized network communication, ensuring reliability, accuracy, and timeliness. Around 2000, Xinhua’s “XH2000” digital distribution system connected central and national media through satellite, dedicated lines, and internet networks, delivering Party and government positions during critical political and economic events.

Challenges in the Mobile Internet Era

The rise of mobile internet and smart terminals precipitated a “print media decline” narrative, compelling wire services to adapt. In 2015, responding to plummeting traditional media revenues and the shift toward digital channels, Xinhua’s editorial office established a new strategic vision following research on wire service optimization. The agency mandated a transition from serving traditional media exclusively to accommodating both traditional and new media, from unidirectional content provision to interactive publishing, and from simple content delivery to comprehensive services—effectively extending the national 通讯社’s core functions into the digital realm. Luo Yi, Director of Xinhua’s Technology Bureau, emphasized that the new platform must “build a modern distribution system balancing wire and database services,” following 新闻传播规律 and emerging media development patterns while achieving autonomous control through internet technology systems.

Project Implementation Timeline

The project launched in August 2016, with the 全媒体供稿平台 taking initial shape by December. Official deployment occurred in May 2017, followed by English and Japanese versions in October 2017. To date, over 3,000 domestic and international news organizations have connected to the system.

Core Features and Innovations

The platform addresses three critical challenges: First, **rapid response requirements** demand second-level reactions to major news events and minute-level responses for routine coverage—internet-era users tolerate no delays. Second, **diverse user categories** span central media like CCTV and *People’s Daily*, local outlets such as *Beijing Daily* and *Tianjin Daily*, government agencies, institutions, portals, new media organizations, and individual users with varying technical capabilities, making one-size-fits-all solutions impossible. Third, **system integration complexity** arises from legacy systems including satellite, internet, database, and high-bitrate video download services with disparate technical approaches and user experiences, hindering unified, standardized service delivery.

The solution framework prioritizes personalization and intelligence, reintegrating content channels and user relationships through a new technical architecture to deliver intelligent, convenient, mobile, and unified services. **Intelligence** manifests through smart recommendation algorithms that associate text, images, and video resources while analyzing user behavior—download patterns, timing, usage records, keyword searches, and geographic data—to precisely define user profiles and optimize recommendations. **Convenience** transforms distribution from single-mode to multi-channel delivery via FTP, email, and APIs, supporting multiple format standards including CNML, SimpleML, NewsML 1, NewsML-G2, plain text, and legacy 8-line formats for domestic and international

users. **Mobility** shifts distribution from PC-only to “PC + mobile,” enabling users to access subscriptions, revision notices, and critical releases via APP while establishing online communication platforms for enhanced interaction. **Unified integration** consolidates satellite, internet, multimedia database, and high-bitrate video distribution systems into a single platform, transitioning from single-medium to all-media and from isolated systems to integrated infrastructure.

User Impact and Feedback

Since launch, the project team has continuously gathered user feedback, with most media organizations reporting improved editorial efficiency in content selection and more effective iterative development. Li, Deputy Director of Hubei Chutian Traffic Radio, noted the platform’s shift from user-initiated selection to proactive content curation, with recommendation functions alerting editors to relevant stories—demonstrating enhanced user service consciousness. Zhang Kexia, Editor-in-Chief of Tencent News Center’s Information Department, praised the platform’s personalized access and professional service standards, stating, “This deserves applause for Xinhua.”

Architectural Transformation

The new architecture dismantles traditional “siloes, vertical, and decentralized” enterprise structures that struggle to align with business needs. As veteran IT architect Wang Qiao observes, internet technology architectures offer decisive advantages in this context. Project leader Ding Wang, Deputy Director of the Technology Bureau’s Laboratory, explains that the “New Distribution Platform”—the colloquial name for the “Xinhua All-Media News Service Platform”—achieved rapid development and deployment through top-level design employing cutting-edge internet architecture.

Internet-based architecture fundamentally differs from traditional siloes structures, where systems like sales management and customer service were built separately across different periods, creating data inconsistencies and inefficient file-based service invocations. The new architecture separates infrastructure, data platforms, and applications, achieving loose business coupling and modular hierarchy. The infrastructure comprises over 800 servers and 300 network devices, while the data platform centers on content data, integrating acquisition, cleansing, classification, tagging, service interfaces, and natural language processing to respond to application requests.

Development Model Innovation

The platform’s development represents a fundamental shift from Xinhua’s traditional “turnkey” IT project management model, characterized by long development cycles, low client involvement in R&D, and limited agility. The new

model enables business-driven iteration on a flexible technical foundation, ensuring project vitality where completion marks the beginning of new application cycles rather than closure. Ding Wang emphasizes that autonomous control requires professionals handling professional tasks; as project scale reaches substantial magnitude, building a dedicated team becomes essential. The project cultivated specialized IT talent, with team members transitioning from project managers to R&D leaders.

Young staff members drove core innovations: Wei Haitao, a nine-year veteran, developed automated CentOS deployment software based on PXE, SaltStack-based management tools, and an ELK monitoring platform for application and network logs, managing over 800 servers. Yang Xiaogang, with eight years of experience, deployed GlusterFS clusters to replace expensive, capacity-limited unified storage, solving long-term storage for tens of terabytes of video content. Yang Qi became a MySQL expert, while Shi Chao, proficient in Python, independently managed the new API push system. The platform now employs fully open-source architecture from backend databases to frontend publishing, enabling rapid response to user needs with biweekly version iterations on average.

Future Outlook: Media Infrastructure

The project's organizational command structure featured a “luxury lineup,” with Director Luo Yi conducting daily progress briefings during critical development phases. This new project-driven model creates new production relationships—when leadership required English and Japanese versions, the team self-developed both within two months, demonstrating that technical empowerment precedes business empowerment. For media technologists, autonomous control over architecture and core code represents the most practical path to empowerment. As Wang Jian, Chairman of Alibaba's Technology Committee, has repeatedly stated: technology platforms constitute the infrastructure of media organizations.

Note: Figure translations are in progress. See original paper for figures.

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