



## Customer Success Story

**Daffodil enables Pajhwok News to develop a robust CMS and provide a seamless news experience to 200,000 viewers per day**



- Customer:** Pajhwok News
- Country:** Afghanistan
- Industry:** Media and Entertainment
- Our Role:** Product Engineering



## About Client

Pajhwok News is Afghanistan's largest independent news agency. Headquartered in Kabul, the agency puts up in eight regional bureaus housing a nationwide network of reporters and correspondents. Its multilingual website caters to more than 200,000 visitors and has become the primary news provider in Afghanistan. The news agency delivers an average daily output of three dozen stories in Dari, Pashto, and English. Pajhwok's mission has been to help build a diverse Afghan media that keeps Afghan citizens informed, promotes transparency and accountability in governance, broadens participation in national life, and fosters respect for human rights.

**26%**

increase in new visitors

**74%**

returning visitors

**75%**

faster-loading speed

**50%**

reduction in  
development cost

# Problem

The media industry has encountered a reflux of innovation in recent years. Features such as Over-The-Top (OTT) streaming services, robust content distribution networks (CDN), dynamic CMS applications etc. add up to providing a wholesome user experience to the viewers.

Pajhwok's online news portal, which was built using obsolete technologies, was facing various issues such as low loading speed, repeated crashes, outdated UX much more. These challenges resulted in more than 50% dip in returning visitors. Being a news agency website, Pajhwok's primary website was uploaded with a huge amount of data over time. This led to the database becoming quite heavy which slowed down the site. Pajhwok was also struggling to upload new videos & photos that were part of their news content ill-managed database, resulting in productivity loss for editors and website managers.

Pajhwok was looking for a technology partner that could help them with their technology aspirations. Daffodil's comprehensive suite of services to help manage, deliver and monetize OTT content by providing an omnichannel experience to the viewers gave Pajhwok the confidence to trust us with the challenging project.

The key challenges that were presented to Daffodil were:

- A complete transformation of their digital landscape by adding innovative features such as a dynamic CMS, content monetization, a robust CDN integration, social media integration, combined with an intuitive UI/UX.
- To integrate an OTT service suite into the web application and help Pajhwok improve the video streaming module and provide a seamless viewing experience to the users.
- To integrate the website with social media plugins and subscription functionality in order to monetize the content.

# Solution

Upon analyzing Pajhwok's business requirements, our business analysts suggested Drupal to be the best fit to fulfill their technological objectives. Team Daffodil built the website using Drupal versions 6 and 7 and integrated various additional modules and themes. The Apache Solr Search Integration module was used to replace the core Drupal search for better performance. The APC user cache was used as a key module to enhance PHP code caching on the server as its goal is to provide a free, open, and robust framework for caching and optimizing PHP intermediate code. The Memcache API and integration were used to improve server caching and thus server response which helped deal with the speed issues that the existing website was facing.





Daffodil built an application framework that was integrated with the video streaming functionality of Pajhwok's news website. Technologies such as caching, Adaptive Bitrate Streaming (ABS), etc. were incorporated to automatically shift bandwidth to higher/lower levels according to the users' bandwidth availability, and network conditions in real-time. We also enabled low latency streaming capabilities and zero buffering using less streaming resources to deliver an optimized and seamless video streaming experience for all the uses of Pajhwok's video module. The HTTP video streaming protocols were followed to build the platform as it breaks down file downloads into small chunks that initiate over a transport stream which in turn minimizes buffering and is resilient to changes in network bandwidth. HTTP streaming scales to the strength of available network connection, encoding at different quality levels to sustain playback through lost connection. Thus the platform became scalable, resilient, and provided a superior user experience.

Pajhwok wanted to provide access to all the latest news to paid subscribers and hence the Ubercart module was integrated into the platform. With the help of the module, users could purchase the subscription for a day, month, or year at respective prices. We also implemented PayPal payment Gateway to charge users for their subscription. We wanted to eliminate the need for users to purchase the subscription again and again whenever it expires. Hence, UC Recurring Payments and Subscription modules were used to charge subscribers recurrently when their subscription ends to allow uninterrupted access to news stories. Session limit mechanism was used to ensure that a single account could not be shared by multiple users at the same time.



In order to reduce load on the primary website, we decided to create a separate subdomain that was maintained to handle news archives. In order to eliminate the need to manually copy the contents on the archive domain, we used the deployment module to deploy news articles from the main site to the archive server on a daily basis. On data deployment, a mail was sent to the site admin about deployment success including a link to check logs. Once the news is deployed a view is created for the admin where he can delete the old news. A view was created where the user can search the news archive and if the news they were looking for is older than one month then the user is automatically redirected to the archive domain.

A few additional features and modules that were integrated into the website were:

**Internationalization:** An internationalization module was integrated into the website to enable language translation and allow editors to add different language versions for each news article. The website had content in three languages i.e. English, Dari, and Pashto.

**Node queue:** This feature module was used to customize the order of news articles and videos displayed on the website. This provided the editors with the flexibility to choose the content they want to display on the homepage. Three different Node Queues were maintained for the three languages that the website operated in.



**Views:** This Views exposed filters module enabled categorization of the news articles, pictures, and videos in multiple formats on the website. The content could be categorized in any manner such as based on time, popularity, etc. to help the user access the required news piece easily.

**Simple Gallery:** The Simple Gallery module was used to maintain the photos uploaded with the news article in a photo gallery. For every month a new album was created and all the images of that month were added in the album.

**Social Media Integration:** This feature helped users share news articles, photos, and videos on their social media platforms directly through the Pajhwok website. Drupal's inbuilt social media tool helps to integrate the company's social accounts too with the website.

**SMTP Authentication Support:** This module was used to send multiple notification emails for subscription renewal and expiry to the subscribers. This ensures the mails sent were not marked as spam and reach the receiver's primary mailbox.

## Impact

Daffodil developed the entire platform using the latest versions of the open-source technology, Drupal to eliminate the performance issues that the client was facing. The use of open source technology also resulted in a 50% reduction in the costs of software. The incorporation of the OTT video streaming functionality increased the website traffic and resulted in 74% returning visitors and 26% new visitors on the website. The addition of social media and subscription features improved client satisfaction of enterprise customers. The application exhibits a 75% faster loading speed with the help of Memcache API and integrations resulting. The managers and employees at Pajhwok now work with minimal fear of downtime as the website has only been down for 30 minutes in the past 4 years which is a commendable achievement for a news platform.



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# Technology Stack













- Drupal 6 and 7
- Ubercart
- MySQL
- Memcache
- AngularJS
- Ionic for Mobile Apps

# About Daffodil

Daffodil Software is a software engineering partner to 100+ organizations across the globe and has been helping them in making their software products more robust, teams more productive and processes more efficient. Our ability to look beyond technologies to deliver innovative solutions with scale and speed has been lauded by our clients as well as the tech community worldwide.

Since our inception, we have invested in organic growth; building on our engineering capabilities, organizational processes, and culture required to deliver a truly collaborative ecosystem for solving technology challenges. At the core of Daffodil lies a culture rooted in innovation, learning and a result-oriented mindset.

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