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Tweentribune.com Case Study

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Tween Tribune Case Study

Tween Tribune is the world's first Online Newspaper for Kids between the ages of 8 and 14 encouraging Kids to seek out News on a daily basis. Each day news links are posted to the day's most compelling news from a tweens *perspective*. Stories chosen for TweenTribune are selected by tweens working closely with professional journalists. Tweens can submit links to stories they'd like to share, submit their own stories and photos, and comment on the stories they read. *Tween Tribune* maintains complete compliance with COPPA, the Children's Online Privacy Protection Act. This means that teachers don't have to worry about things like kids using their last names or posting their email address.

[Alan Jacobson](#) is TweenTribune's managing editor. He's the father of [two Tweens](#) and the president of [BrassTacksDesign](#), which has provided editorial, advertising and technical support to newspapers from New England to New Zealand for almost 20 years.

Established Traffic

Tweentribune receives more than 2 million page views a month. This traffic is reached only during the peak hours that has span of 6-8 School working hours and only weekdays. The traffic rose to 3 million in just last 3 months after a major marketing campaign to teachers. The page views have increased drastically from 40,000 in August to 3 million in March. Unique number of users tracked in January was found to be three hundred thousand.

The general spikes are found mostly during early mornings and it goes to 1000 users in one hour.

About Company

- Organization – Tween Tribune
- Industry – Media
- Managing Director – Alan Jacobson
- Page Views per Month #2 million
- Visitors Per Month # 3 lakhs
- Age Group of Users # 8-14

Introduction

During Christmas in 2008, Founder of [Tweentribune](#), [Alan](#), decided to move its website from Wordpress to a more capable and flexible Content Management System [Drupal](#). He contacted us in December 24th 2008 and worked with us to develop the application that would allow Tweens of ages 8 to 14 to read a variety of interesting content as well as comment on news for other Kids to see. Teachers can easily use Tween Tribune as a teaching tool. First, the site uses high-interest reading material to engage students with the news.

Teachers can register their classes on the site, which allows them access to special features like custom generated pages that show students comments or stories the class has commented on. Teachers can print out reports by student; these reports allow them to see which articles students have read and to access to individual student's comments. In this way, teachers can easily grade or comment on students' writing. There's even a Faculty Lounge where teachers can interact with each other, sharing ideas and lesson plans.

Using Drupal 6 and a variety of excellent contributed modules, the site [Tweentribune.com](#) was launched in March, 2009. Modules used include [Views](#), [CCK](#) (both core and imagefield), and [Imagecache](#).

[Ebizon Netinfo](#) wrote the code for all the custom features of [TweenTribune](#). This custom code is integrated into a Drupal Content Management System in the form of Drupal Modules.

After 1.3 years, Tweentribune is a success story that has been featured in [LAtimes](#), [YPulse.com](#), [KillerStartups](#), [WeMedia](#), [GoodHouseKeeping](#) and getting almost **2 million page views a month**. Currently, [Ebizon](#) also provides ongoing support and 24/7/365 technical support which can be referred here:

<http://tweentribune.com/content/Partners>

Scalability Challenges

- Highly Database Intensive Application
- Busted Pages Issue
- Auto management of excessive requests from Teachers to register their classroom.

Recommendations

- Memcache & APC Installation
- Using Drupal Boost
- Lighttpd for storing static files, css and js

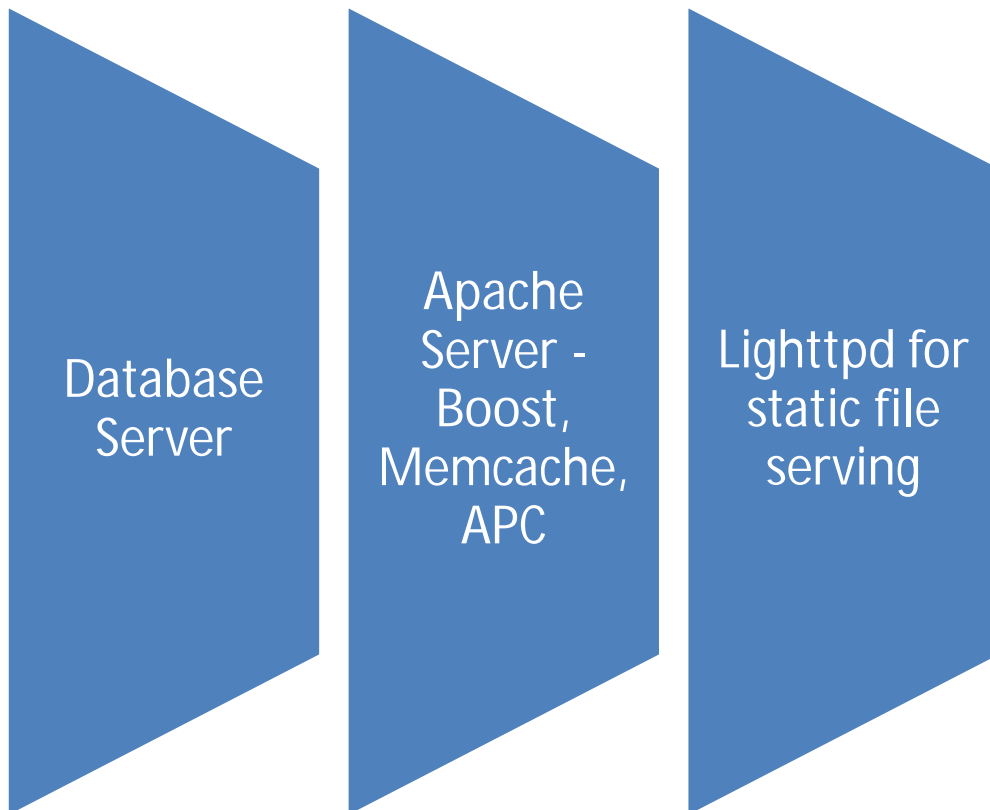
Scalability of Database Intensive Application

Tweentribune.com had couple of unique challenges. The traffic used to pick during US school hours with most users logged in and hence, creating making maximum connections to the database. The webserver and database were separated on 2 different machines in the same network (LAN).

Further Following measures were taken to improve drupal performance:

- a. Optimize database queries and modules
- b. Use Memcache for all database cache.
- c. Sessions which are typically stored in database in Drupal were also stored in memcache.
- d. Boost module to serve html content for anonymous users
- e. Using Lighttpd to serve static files like css, js, images.
- f. APC as the PHP accelerator was used.
- g. Using Linux shell, Munin and Nagios for monitoring.

The architecture looks like below:



Hardware

The underlying hardware included 2 machines on the same Gigabit network:

One with apache webserver and memcache has following configuration:

- a. Quad Socket Quad Core Intel Xeon E7440 2.4GHz
- b. 128 GB Memory
- c. Operating System: Red Hat Enterprise Linux 5 - 64 bit

Database server has following configuration:

- a. RAID 5
- b. 12 GB DELL RAM
- c. Single Socket Quad Core Intel Xeon L5520 2.26GHz

Tweentribune Application and Database Architecture

Tweentribune.com is a news site for Tweens. CCK, Views, Webform, Taxonomy, Imagecache form the core around which the site is built. Custom AJAX-based drop down select was developed as a replacement of hierarchical select module (http://drupal.org/project/hierarchical_select) when selecting classroom during registration or posting of stories.

Custom module was used to allow non-email based registration on the site, since; Tweens usually do not have email addresses. Also, custom functionalities like allowing administrator to register teacher's requests easily from an interface that are received from webforms were also developed. Comment moderation by teachers was also integrated into the site using Modr8 module.

Content Types

- Stories: This is the main content type around which whole Tweentribube.com stories are built.
- Profile: This content type carries the student and teacher profile information like classroom.
- Your-stories: Using this content type, teachers can post their own news into their classrooms.

Name	Type	Description	Operations
AdminStory	admin_story		edit manage fields delete
Advertisement	ad	Advertisements can be randomly displayed to visitors of your website.	edit manage fields
AffiliateStory	affiliate_story		edit manage fields delete
Alternate Registration	alternate_reg		edit manage fields delete
Blog Comment	blogcomment	This is a role restricted content type for blog comments.	edit manage fields delete
Blog entry	blog	A <i>blog entry</i> is a single post to an online journal, or <i>blog</i> .	edit manage fields
Comment	comment	A comment for use with the nodecomment module.	edit manage fields delete
FeaturedStory	featured_story		edit manage fields delete
Internal Report Cities	internal_report_cities		edit manage fields delete
Lock Classroom	lock_classroom	Use this content type to lock classroom. This content type is used by the teacher to lock his/her class from registration.	edit manage fields delete
New Webform Alternate Registration	webform_alternate_reg		edit manage fields delete
Newspaper Logo	newspaper_logo		edit manage fields delete

Taxonomy

- Categories: This vocabulary is used to define category of the story posted on Tweentribune.com.
- Classroom: this vocabulary allows users to be assigned to the classroom. Classroom is based on parent-child hierarchy with country, state, city, school and then classroom following parent child relationship. Certain stories can also be optionally put in some classroom/school.

List Add vocabulary

The taxonomy module allows you to categorize your content using both tags and administrator defined terms. It is a flexible tool for classifying content with many advanced features. To begin, create a 'Vocabulary' to hold one set of terms or tags. You can create one free-tagging vocabulary for everything, or separate controlled vocabularies to define the various properties of your content, for example 'Countries' or 'Colors'.

Use the list below to configure and review the vocabularies defined on your site, or to list and manage the terms (tags) they contain. A vocabulary may (optionally) be tied to specific content types as shown in the *Type* column and, if so, will be displayed when creating or editing posts of that type. Multiple vocabularies tied to the same content type will be displayed in the order shown below. To change the order of a vocabulary, grab a drag-and-drop handle under the *Name* column and drag it to a new location in the list. (Grab a handle by clicking and holding the mouse while hovering over a handle icon.) Remember that your changes will not be saved until you click the *Save* button at the bottom of the page.

Name	Type	Operations
+ Ad groups	Advertisement	edit vocabulary list terms add terms
+ Classroom	Profile, yourStory, Your Story School Logo	edit vocabulary list terms add terms
+ Faculty lounge topics	Blog entry	edit vocabulary list terms add terms
+ Tags	AdminStory, Story	edit vocabulary list terms add terms
+ Topics	AdminStory, Story	edit vocabulary list terms add terms
+ Your town	AffiliateStory	edit vocabulary list terms add terms

Tween Tribune Support

- Ebizon provides ongoing support and maintenance
- 24x7x365 technical support
- Basecamp is used for project management
- Maximum of 4 hours turnaround time for urgent requests

Technical Challenges

- 1) Drupal is both resource intensive and database intensive. Its strength is ease of development, extensibility through modules and faster development time. Its downside is that it requires more CPU and RAM than other CMSs.
- 2) Busted Page issue which was causing page to break. The busted page was a much trickier issue solely due to its intermittent nature.
- 3) To provide 4-8 hours turnaround time service to help users have seamless experience
- 4) Using Memcache, Squid, APC, etc to make Drupal scale
- 5) Location based advertisement and headers implementation in Drupal 6.
- 6) As the success grew there were many request from teacher start were coming daily from Contact form for quick registrations.
- 7) Only teachers of a classroom should be able to moderate the comments and comment should be published only after they have been approved.
- 8) Displaying username, password and submit in one line to optimize the space.
- 9) Blocking inappropriate words that student puts in their comments
- 10) Every Student does not have an email id therefore one of the challenges were to allow users to register without entering email id. Drupal registration has a compulsion of adding an email address through which it verifies the user.

- 11) Alan needed a way for the teacher to send every student's comments to the printer with one click, instead of sending them one at a time with one click per student.
- 12) Lighttpd is a web server that was used to serve static files (images, javascripts, css) to reduce burden on Apache webserver. This was running on port other than 80- which was blocked by Schools firewalls.

Solutions

- 1) With our experience we found that couple of Drupal contributed modules are resource intensive and their optimization is necessary in order to scale the system. Some of these modules were We monitored SQL queries using devel module and identified the queried that consumed most resources. Then we optimized those queries and monitored their performance and load on the system for couple of days. The results and improvements were captured in a performance report that was published for client's review.
- 2) The Busted Page Issue was THE MOST important issue since the site had scaled to 2 million page views a month and we couldn't risk this problem to survive any longer. Initial attempt was to disable BOOST module but to our surprise disabling Boost did not solve the problem. After 24 hours of rigours effort and monitoring it looked like menu paths were restructuring during CRON that was running every hour. The best of teams in the world were thinking on it but no one could get to the root. Finally, one of our best technical leads made the cron to run instead of every hour only at night at 12 am. This resolved the Busted page problem and was a GREAT success for us and Alan.
- 3) To support Tweentribune requests, we used Basecamp (project management tool) and for every Urgent request, turnaround time of 4 hours was provided. To ensure seamless experience, our technical lead and project manager's direct contact numbers were provided to ensure proper communication
- 4) Memcache, APC and Squid were installed and configured on the server. Memcache was monitored and configuration of Memcache was changed with

time as traffic improved and RAM of the server was changed.

- 5) We customized Drupal **ad geoip** module to implement the feature whereby advertisements and headers can be displayed based on users location.
- 6) Team at Ebizon designed and developed an interface so that any request from a teacher on web form/contact form is fed into automatic teacher creation form. This also allowed admin to delete the irrelevant requests.
- 7) We customized Drupal **moderate** module and designed an interface where teaches can see all the comments in a classroom and can approve or disapprove them.
- 8) We developed custom module [UserLoginBar](#) to shows up username, password, submit button block in a single line that is so often the requirement in the new genx websites. We released this module in Drupal.org as a sponsored module by BrassTacksDesign.
- 9) Initial recommendation was to use [Watchlist](#) module will automatically flag a node or comment if it contains any questionable content (these can be set in the Watchlist settings by adding regular expressions of words that are considered bad). But it flags the word and notifies admin AFTER the comment is posted, which was TOO LATE. Therefore Spam module was utilized to resolve this problem.
- 10) We could not put a restriction for users to have an email to sign up on Tweentribune.com therefore our bright team found a way for not letting users create their email and instead having system create their email automatically from their Full name. The contrib module that was modified for this purpose was "[Localemail](#)" and was made to create email ids automatically for each user and let them register directly on Tweentribune. Ebizon currently maintains this module.
- 11) We made a provision for the report of all students at one place. We provided a link – "All Students Reports" under "Comment Report" menu. This is still a challenge for us and we are planning to point lighttpd to a different IP.

About Ebizon

Ebizon is a leading provider of global software services delivering applications and solutions that meet Strategic objectives of our clients by leveraging technologies like PHP based Drupal, Wordpress, Joomla and ASP.NET. We design, develop, and conceive interactive projects for arts, media, entertainment, technology and commerce related clients.

For companies that need a professional and reliable team to execute on demand and strategy oriented services, Ebizon provides world-class web engineers, designers and consultants as Full-time, dedicated remote developers that work as an extension of your team. For details visit: <http://ebizontek.com>

Client Feedback

"I have worked with developers in the U.S., Europe and India and I must say that the work performed by [Ebizon Net Info](#) has been first class and world class. Their work on my Drupal site has been absolutely outstanding. They have been almost instantly responsive to my many and varied requests, and they have never disappointed me. They've completed every task to my satisfaction. They know Drupal, PHP and CSS inside and out. They have a vast knowledge of existing modules and use them to great advantage to keep custom develop costs to a minimum.

As a designer, I've been impressed with their attention to detail, right down to the pixel. My site looks great thanks to them.

Ebizon Netinfo has delivered excellent value for the money I've spent with them. Plus, they're fun to work with!"

~Alan Jacobson

Managing Director, [Tweentribune.com](#)

President, [BrassTacksDesign](#)