

# NILENODE

## Website Infrastructure Proposal

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# EXECUTIVE SUMMARY

## Introduction

NileNode is a complete and highly capable managed software that focuses on delivering news and media at a scale of thousands of users per month (tested). **NileNode is not a Wordpress site.** NileNode is designed from the ground up with a strong focus on performance and security, areas in which most Wordpress sites either fail to deliver or make assumptions and leaves a set of expectations to the user to perform complex workflows such as ensuring security and redundancy of their data.

NileNode is also designed to work on every device. For instance, NileNode ensures that users on older browsers like Opera Mini enjoy a beautiful, consistent, and professional view of your content the same way users on modern browsers do.

NileNode is also able to scale in order to support millions of page views while still being fast. NileNode infrastructure is built in such a way that it is able to resize to support your traffic needs and therefore reducing costs involved with overusing computing resources.

| Primary Dimension: Page Page Title Other |  |   |   |   |
|--|--|---|---|---|
| <input type="checkbox"/>                 | Page   | Pageviews                                       | Unique Pageviews                                | Avg. Time on Page                             |
|  |  | 3,056,152<br>% of Total: 100.00%<br>(3,056,152) | 2,662,214<br>% of Total: 100.00%<br>(2,662,214) | 00:03:18<br>Avg for View: 00:03:18<br>(0.00%) |
| <input type="checkbox"/>                 | 1. <a href="#">/post/new-evidence-the-real-reason-gaddafi-was-killed-2706</a>        | 664,277 (21.74%)                                | 583,280 (21.91%)                                | 00:04:31                                      |
| <input type="checkbox"/>                 | 2. <a href="#">/post/africas-billionaires-list-2016-1738</a>                         | 486,331 (15.91%)                                | 432,324 (16.24%)                                | 00:04:19                                      |
| <input type="checkbox"/>                 | 3. <a href="#">/post/obama-expresses-regret-over-libya-2787</a>                      | 131,809 (4.31%)                                 | 117,448 (4.41%)                                 | 00:03:05                                      |
| <input type="checkbox"/>                 | 4. <a href="#">/post/8016-we-miss-you-colonel-gaddafi-cry-the-troubled-libyans</a>   | 116,308 (3.81%)                                 | 104,954 (3.94%)                                 | 00:04:15                                      |
| <input type="checkbox"/>                 | 5. <a href="#">/post/5-president-mugabe-rib-crackers-2448</a>                        | 110,210 (3.61%)                                 | 100,626 (3.78%)                                 | 00:04:17                                      |
| <input type="checkbox"/>                 | 6. <a href="#">/post/7580-how-female-sex-tourists-are-exploiting-african-men</a>     | 90,511 (2.96%)                                  | 84,554 (3.18%)                                  | 00:05:10                                      |
| <input type="checkbox"/>                 | 7. <a href="#">/</a>   | 82,762 (2.71%)                                  | 53,513 (2.01%)                                  | 00:01:37                                      |
| <input type="checkbox"/>                 | 8. <a href="#">/post/7912-here-are-the-most-peaceful-countries-in-africa-in-2016</a> | 62,965 (2.06%)                                  | 56,458 (2.12%)                                  | 00:03:06                                      |
| <input type="checkbox"/>                 | 9. <a href="#">/post/7804-how-the-us-overthrew-ghanas-kwame-nkrumah</a>              | 61,709 (2.02%)                                  | 53,263 (2.00%)                                  | 00:04:52                                      |
| <input type="checkbox"/>                 | 10. <a href="#">/post/the-6-fastest-growing-economies-in-africa-36</a>               | 53,019 (1.73%)                                  | 48,138 (1.81%)                                  | 00:04:08                                      |

Sample Analytics from The African Exponent

## **Objective**

- Show you the benefits your organization can get from upgrading to NileNode infrastructure.
- Show you different modern functionalities offered by NileNode

## **Solutions**

Our infrastructure and implementation excels in three different areas.

1. Security
2. Scalability and Performance
3. Usability

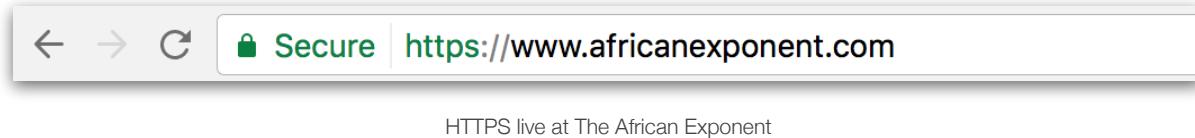
Each of these is crucial in ensuring that NileNode provides the best experience to both content creators and content consumers. The following is a brief discussion that expounds on each of these key areas.

## SECURITY

Our team has made significant efforts to ensure that your data will be secure both in transit and at rest. For NileNode, security is more than just preventing unauthorized access to your data. We have gone into lengths to ensure that your data is backed up and protected from disaster.

### HTTPS

Many news and media websites have now started embracing HTTPS such as [The New York Times](#) and [BBC](#). NileNode comes with **free full HTTPS support** and therefore any data transferred between your users and the servers is secured while in transit. This can include critical data such as user login credentials, article images and other article assets. HTTPS is also required for other services offered by NileNode e.g. Auto-SignIn and Offline features.



HTTPS live at The African Exponent

### BACKUPS

News and media websites consist of a wide array of assets including text, images, video and audio. Most assets take a long time to create and we believe that ensuring data redundancy is key in making sure that an organization focuses on creating new content. Your data will be **encrypted and backed up at intervals that you specify**. At NileNode, we condense all this complexity to something as easy as “do a full backup every Saturday at Midnight, Nairobi time.” By default, **NileNode will perform full weekly backups of your data for free**.

Backup essentially ensures that your data can be restored to a certain point in time if needed. This covers contexts such as unexpected data loss which happen from time to time in an organization that moves data a lot.

Encryption of your data ensures that your backed up data is secure while at rest. This data can only be read when it is decrypted and any un-authorized access will lead to garbled data that is potentially useless to the offender.

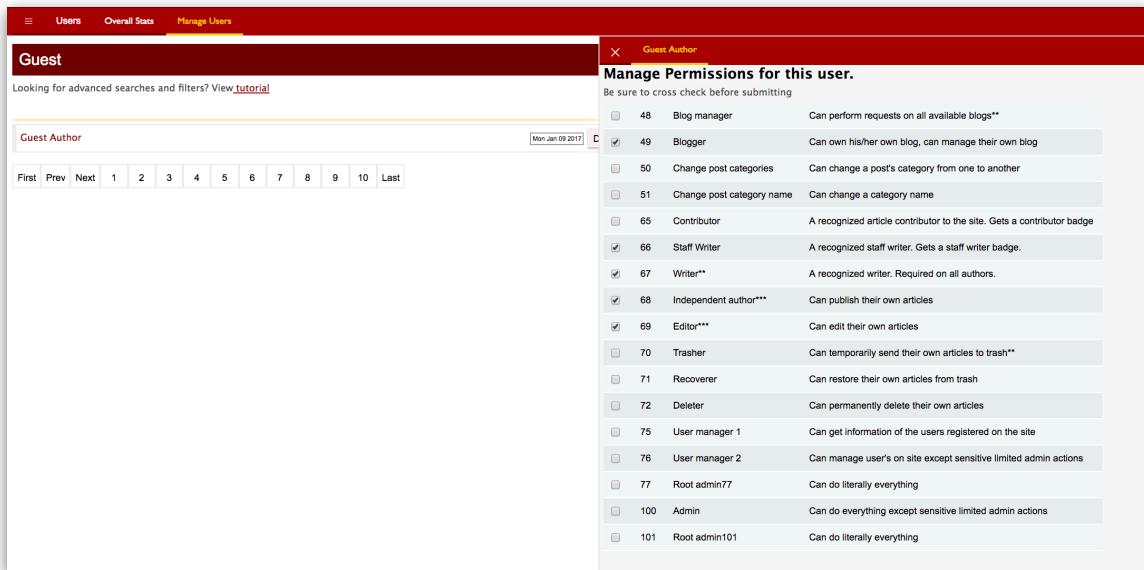
## PERMISSIONS MANAGEMENT

Complex workflows will most likely result into complicated permission models. Some questions that come to mind include:

- Who is allowed to write an article?
- Who is allowed to publish an article to the public?
- Who is allowed to delete an article?

NileNode provides an easy permission model to manage all the fine details that are required to make sure that every team member only has the necessary permissions required to do their respective tasks and no more.

As an admin you can manage all users on the website. You can assign users different permissions depending on their role in your organization. You can have editors, who read and publish articles, or writers, who only write articles or bloggers, contributors, staff writer who all have different permissions.



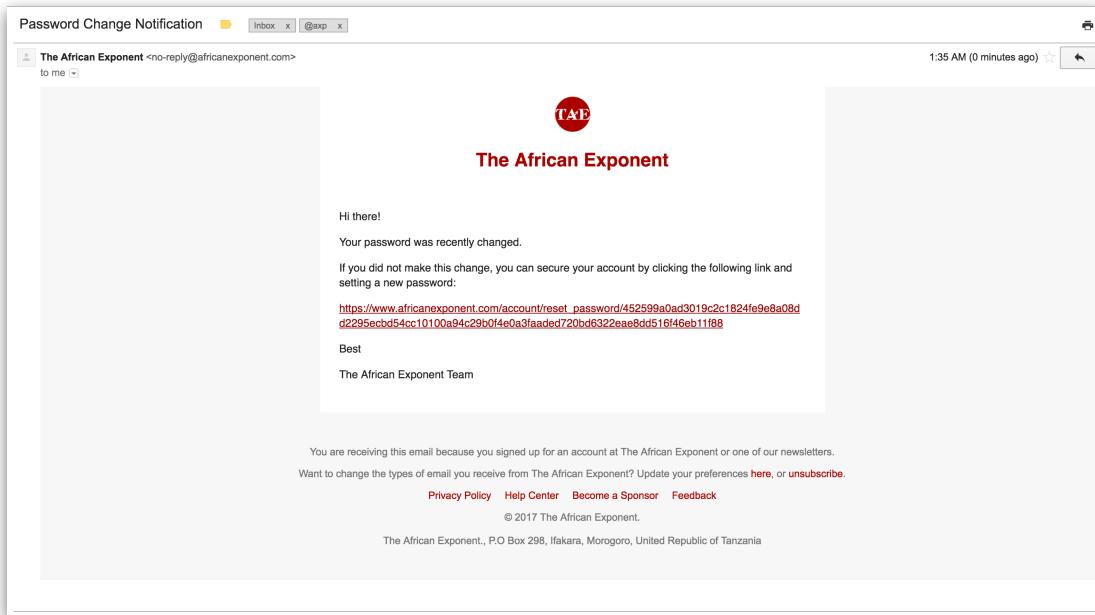
The screenshot shows the NileNode user management interface. On the left, a list of users is displayed with 'Guest' selected. On the right, a detailed view of the 'Guest Author' user role is shown, titled 'Manage Permissions for this user'. The interface includes a note to 'Be sure to cross check before submitting'. A table lists various permissions with checkboxes for selection. The permissions listed are:

| Permission ID | Role                      | Description   |
|---------------|---------------------------|---|
| 48            | Blog manager              | Can perform requests on all available blogs**                           |
| 49            | Blogger                   | Can own his/her own blog, can manage their own blog                     |
| 50            | Change post categories    | Can change a post's category from one to another                        |
| 51            | Change post category name | Can change a category name  |
| 65            | Contributor               | A recognized article contributor to the site. Gets a contributor badge. |
| 66            | Staff Writer              | A recognized staff writer. Gets a staff writer badge.                   |
| 67            | Writer**                  | A recognized writer. Required on all authors.                           |
| 68            | Independent author***     | Can publish their own articles  |
| 69            | Editor***                 | Can edit their own articles   |
| 70            | Trasher                   | Can temporarily send their own articles to trash**                      |
| 71            | Recoverer                 | Can restore their own articles from trash                               |
| 72            | Deleter                   | Can permanently delete their own articles                               |
| 75            | User manager 1            | Can get information of the users registered on the site                 |
| 76            | User manager 2            | Can manage user's on site except sensitive limited admin actions        |
| 77            | Root admin77              | Can do literally everything   |
| 100           | Admin                     | Can do everything except sensitive limited admin actions                |
| 101           | Root admin101             | Can do literally everything   |

A sample of the permissions management interface in NileNode

## USER SECURITY

NileNode comes with built in User Sign-Up, Sign-In and management tools for your users. Accounts help users perform actions on the site such as publishing articles, adding articles to read later and playing crosswords. In addition to account management, NileNode ensures that your users are aware at all times of the status of their accounts in case important information such as their emails and (or) passwords change.



Password Change Notification on The African Exponent

NileNode ensures that your users will be informed of any updates that involve changes in any critical data that is related to their account.

## SCALABILITY AND PERFORMANCE



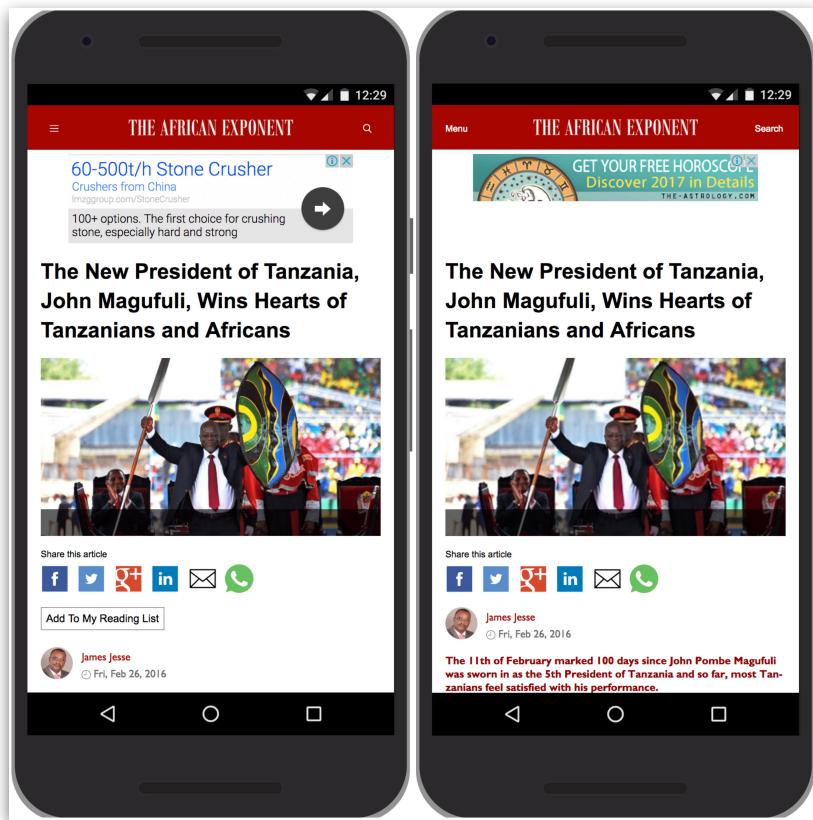
Google's African Exponent performance report. To re-test, go to <https://testmysite.withgoogle.com/intl/en-gb> and enter <https://www.africanexponent.com>)

NileNode was built from the ground up to perform better than other frameworks and content management solutions. It was built to work in the most difficult conditions including places with:

- Low internet connection speeds
- Low end devices e.g. Older devices with very low resources for modern websites to function properly e.g. RAM less than 1 GB, low CPU speeds.
- Older browsers common in many African countries. These browsers make it difficult for many websites to function properly and provide intended experience.

## BROWSER SUPPORT

NileNode makes no assumptions for your users and guarantees that your users will get the best experience while viewing your content no matter what device or browser they view it from.



Google Chrome (Modern browser, left) vs Opera Mini (Older browser, right)

The African Exponent reports that half of their traffic and consequently **half their revenue** comes from users who use older browsers. Ensuring that all of your users enjoy a good experience will help create loyal subscribers to your content and boost your page-views and this will significantly boost your revenue.

NileNode will help your team focus on the content and the rest will be taken care by the software automatically.

### SPEED

The following is an excerpt taken from a report [Mobile speed impacts publisher revenue - DoubleClick by Google's Doubleclick Team](#):

“Additionally, sites that load in 5 seconds vs 19 seconds observed:

- 25% higher ad view-ability
- 70% longer average sessions
- 35% lower bounce rates”

Speed is another factor that also plays a very important role on the web today. NileNode is designed with this in mind and has done an impressive number of optimizations to make sure that it's infrastructure is lightweight and page load speeds are minimal.

| Metric              | The African Exponent | BBC.com        |
|---------------------|----------------------|----------------|
| PageSpeed Grade     | A (98%)              | F (38%) -60%   |
| YSlow Grade         | A (92%)              | F (38%) -54%   |
| Fully Loaded time   | 2.1s                 | 62.6s +60.5s   |
| Total page size     | 489KB                | 2.88MB +2.40MB |
| Total # of requests | 18                   | 417 +399       |

The African Exponent (left) vs BBC (right) - This report was generated from [gmetrix.com](#). Tip: For a personal experience of the speed, visit <https://www.africanexponent.com>.

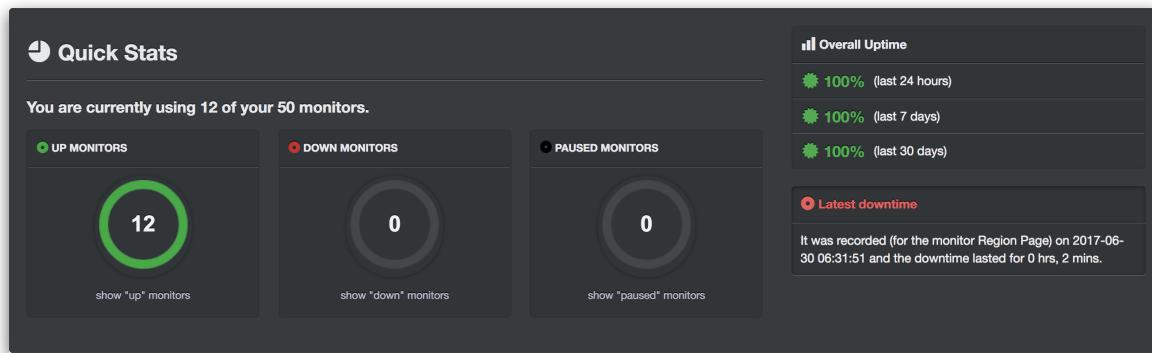
## PAGE SIZE

The lower the page sizes, the higher the potential for more page views and consequently the higher the potential for more revenue. Most competitors average at about 2MB of data per page-view. In most African countries, users buy limited data bundles, and many others live on free data bundles of about 20-30MB a day. With such a high page size, the potential page views an organization would get would somewhere between 10-15 views. (Not taking into account that this particular user might have visited other sites already)

NileNode averages at around 400KB on first visit and stays below 20KB after that. This gives your users room for more page views and your company room to get more revenue from this increased potential.

## AVAILABILITY

NileNode comes with a **99% uptime guarantee** meaning that your organization can expect that your website and resources will be accessible to your users 99% of the time every month. NileNode has been battle tested to withstand and gracefully recover from day to day errors and problems without degrading the end user's experience.



Uptime Robot Report on The African Exponent.

## NUMBER OF USERS

NileNode provides various plans for different traffic loads that your organization intends to support. NileNode can support up to 4000 concurrent connections from your users. This means that, if needed, NileNode can allow up to 4000 users to your your site at the same time. This can guarantee up to 1000 page views every second.

# USABILITY

## GOOGLE ADS ADVERTISING

NileNode understands the importance of having ads on articles as a source of revenue. We know the importance of having a balance between good user experience and generating ads revenue. The ads placement algorithm we use takes these two factors into consideration. We implement various ads banners, sizes that can be customized for specific advertisements:

- Leaderboard banner
- Skyscraper banner
- In-article banner



The screenshot shows a news article on The African Exponent website. The article is titled "The New President of Tanzania, John Magufuli, Wins Hearts of Tanzanians and Africans". Below the title is a large image of President John Magufuli. To the right of the main content, there is a sidebar with several "Related Stories" and a "Comments" section at the bottom. The top of the page features a navigation bar with links to various sections like Home, Politics, Technology, Business, Culture & Life, Markets, Entrepreneurship, World, Travel, and Blogs. A Prezi advertisement is prominently displayed at the top of the page.

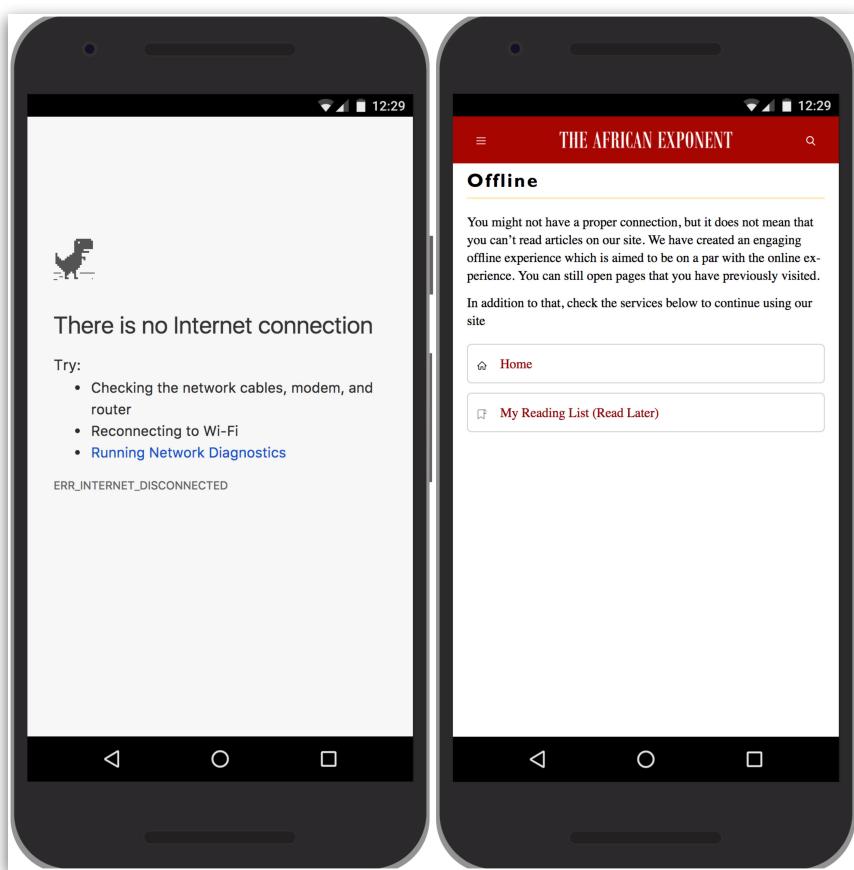
Google Ads live at The African Exponent

## NATIVE ADVERTISING

The platform supports native ads. Advertisers can submit promotional articles that resemble website content. Such articles will seamlessly appear on the website with a tag that indicates that it is a native advertisement.

## OFFLINE USAGE

NileNode comes with built in support for viewing articles and other content while the user is offline. Mobile devices are very sensitive to changes in internet connection speeds and most of the times, users are presented with a no internet access notification as shown below.



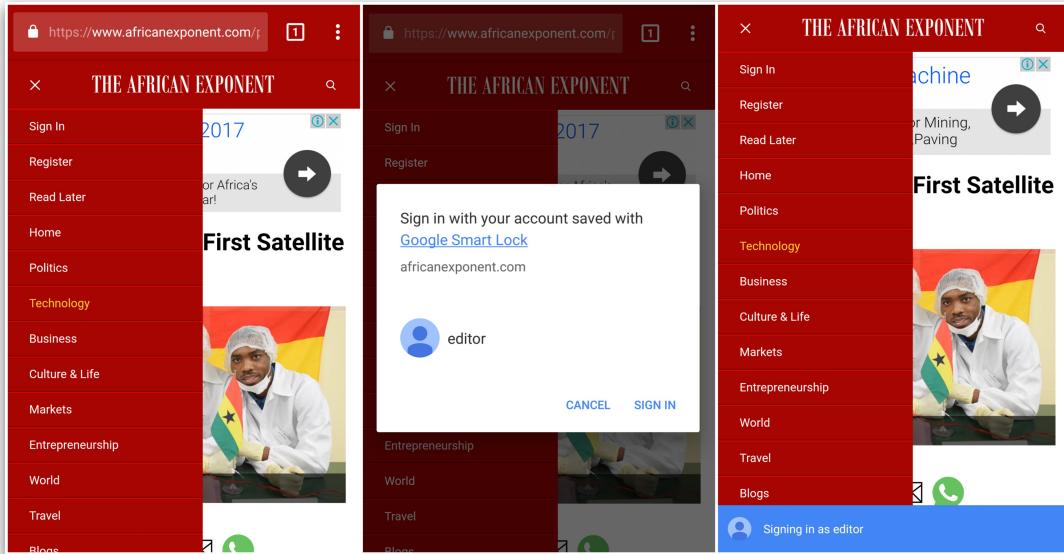
Normal experience when offline (left) vs the offline experience on enabled by NileNode (right)

NileNode solves this issue by presenting the user with various options that should enable them to continue using the site even when offline. Your users will also be able to access the home page, the articles that they previously added to their read later and some of the articles that they have previously visited.

### SIGN UP AND FORGET

NileNode comes with a useful feature that we normally phrase as “sign up and forget”. Most users do not want to remember their username and (or) email and certainly their passwords. The less the hassle in creating an account, the more the number of accounts that will be created.

NileNode uses Google's secure storage and synchronization protocol to synchronize user login credentials to all of his or her devices so that they can be able to **sign in again with just a single click**. This type of technology also requires your site to be on and secure HTTPS connection, something that NileNode provides for free by default.



Native auto-sign-in flow powered by Google's Smart Lock and NileNode

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## BLOGS

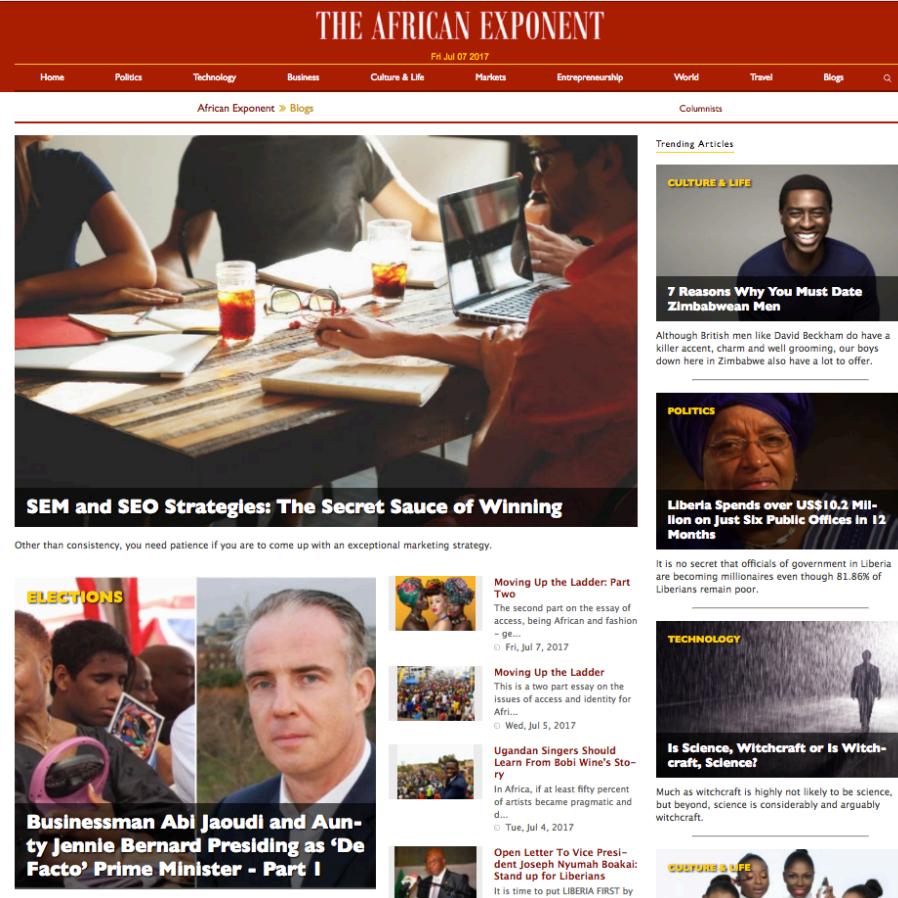
NileNode infrastructure has a built in blogging platform which allows users to create blogs and publish their own articles. These articles are featured on the blogs home page and the main site home page of the website. Blogs provide a unique way for users to become part of the website by sharing their own opinions on different aspects that matter the most in their lives. NileNode supports:

### Individual blogging

- Allows a single user to create a blog and publish articles. The users also enjoy personalized statistics of their blogs.

### Group blogging

- Group blogging offers the same features as the Individual blogging; however the blog is owned by multiple users. This feature is popular for organizations that have multiple writers.



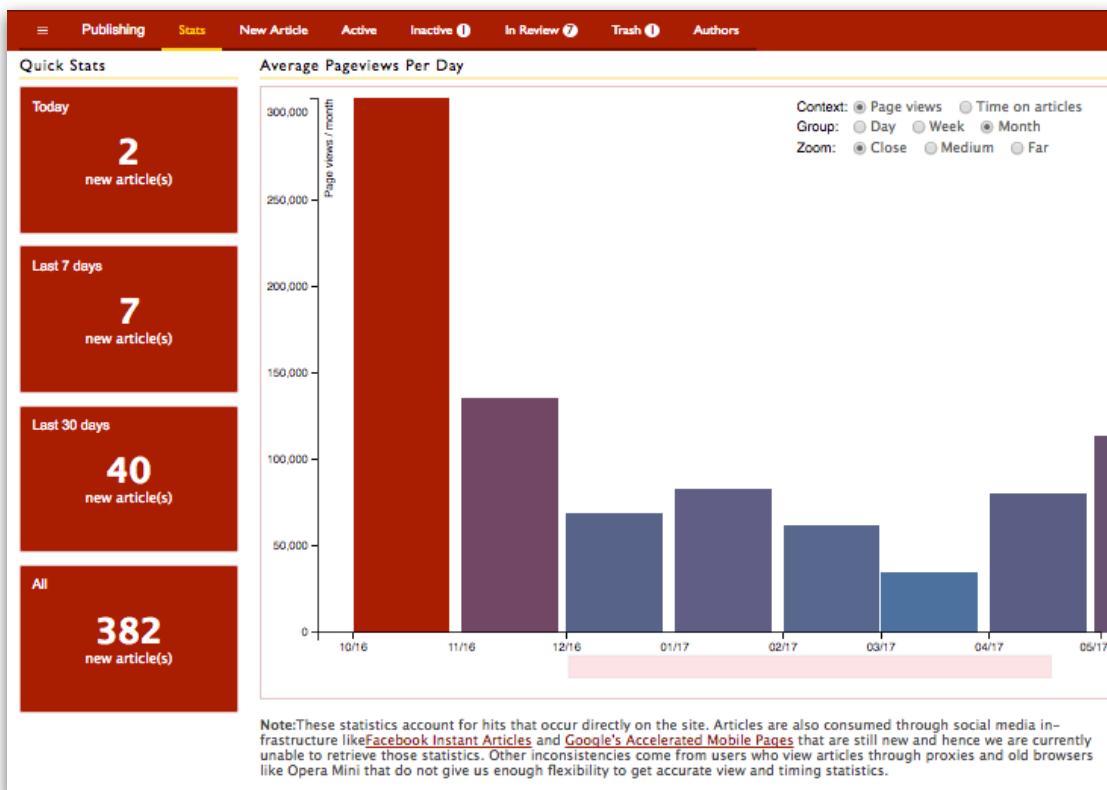
The screenshot shows the homepage of The African Exponent blog. The header features the site's name in a large, bold, white font against a dark red background. Below the header is a navigation bar with links to Home, Politics, Technology, Business, Culture & Life, Markets, Entrepreneurship, World, Travel, Blogs, and a search icon. The main content area has a large, dark image of people working at a table with laptops and papers. A black banner across the image contains the title "SEM and SEO Strategies: The Secret Sauce of Winning". Below the banner, a caption reads: "Other than consistency, you need patience if you are to come up with an exceptional marketing strategy." To the right of the main image, there are several sidebar columns for "Trending Articles". The first article, under "CULTURE & LIFE", is titled "7 Reasons Why You Must Date Zimbabwean Men" and features a photo of a smiling man. The second article, under "POLITICS", is titled "Liberia Spends over US\$10.2 Million on Just Six Public Offices in 12 Months" and features a photo of a woman in a purple headwrap. The third article, under "TECHNOLOGY", is titled "Is Science, Witchcraft or Is Witchcraft, Science?" and features a photo of a person walking in the rain. The fourth article, under "CULTURE & LIFE", is titled "Moving Up the Ladder: Part Two" and features a photo of a person. The fifth article, under "CULTURE & LIFE", is titled "Ugandan Singers Should Learn From Bobi Wine's Story" and features a photo of a person. The sixth article, under "CULTURE & LIFE", is titled "Open Letter To Vice President Joseph Nyumah Boakai: Stand up for Liberians" and features a photo of a person. The footer of the page reads "Blogs HomePage powered by NileNode".

## MONITORING AND ANALYTICS

Monitoring traffic flow is one the important features for any website. Metrics such as page views, average time on article, average session time are critical. NileNode has a built in statistics view for easily monitoring the website performance.

NileNode will also show you what content is performing better on your site and provides you with information such as what the top performing articles are, and the actual number of views that these articles got.

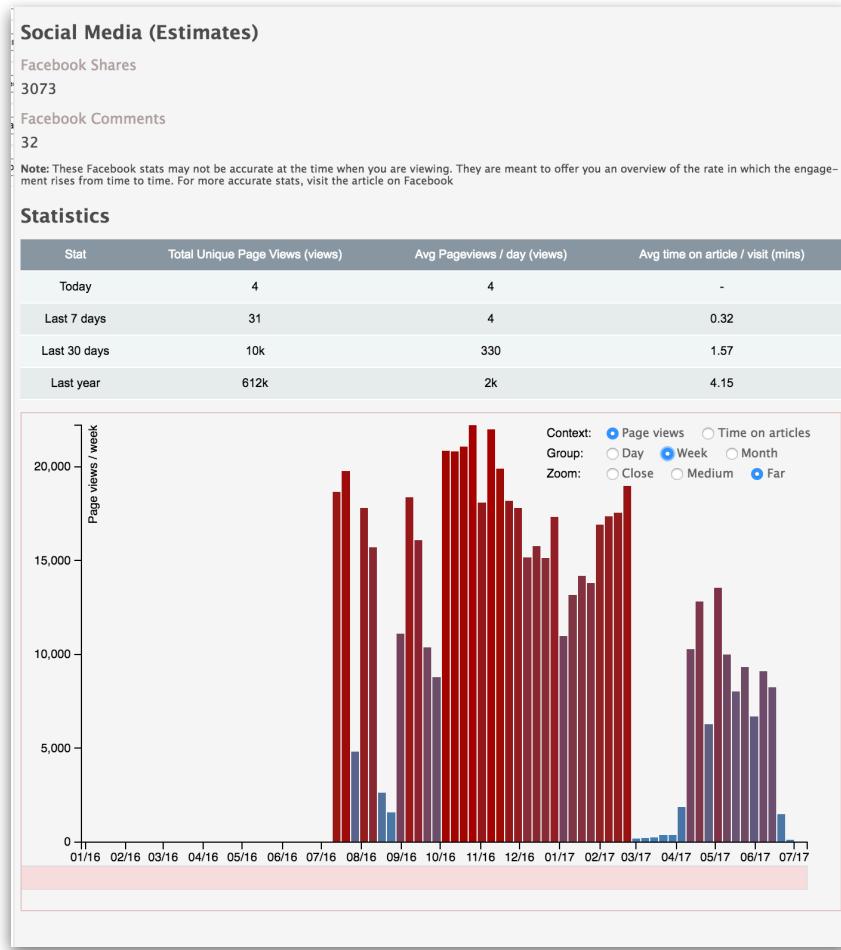
The platform also has the flexibility to view daily, weekly or monthly stats. The performance statistics of your website will always be at your fingertips.



Native dashboard for monitoring article performance

## ARTICLE PERFORMANCE

NileNode also offers insights and statistics on individual content on your site so that you can make informed decisions on what areas you need to concentrate and improve. NileNode automatically aggregates social media statistics such as number of Facebook shares and comments.



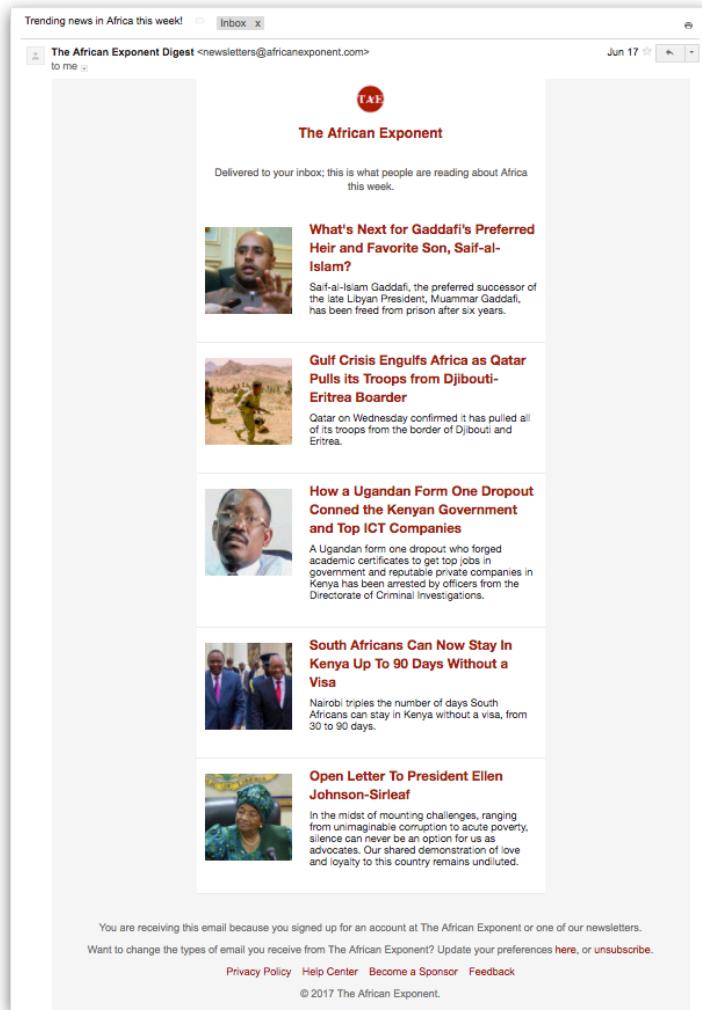
A view showing the performance of an individual article

## COMMENTS SYSTEM

The comments system integrates comments from Facebook and the website. That is, comments made on Facebook also appear on the website and vice versa. This is essential as it maintains the discussion follow on articles from both platforms. Most importantly, this integration ensures that in cases where you deploy moderators for comments, such moderators can only focus on one less platform.

## NEWSLETTERS

NileNode's newsletter infrastructure allows you to send emails to users who have subscribed to any newsletter that has been created on your site. **You can send an email newsletter to thousands of subscribers at once** and most of the complexities behind this is reduced to just a single click. NileNode allows you to manage all of your subscribers and contacts on the platform itself without needing to use and pay for an external platform. This allows you to share popular or important articles that you believe your subscribers ought to read. The newsletters are delivered to the subscribers emails, increasing the chances that such articles will be read.



A sample newsletter from The African Exponent powered by NileNode

## EMAILS

NileNode has built in tools to help you create branded emails and allows you to send customized emails to different user groups on your website, groups such as blog owners, general users, other admins. You can conveniently send emails and choose from different email templates. Every email is customized and includes your company logo and brand colors. The emails feature also has a scheduling option that lets you set the time (within 72 hours) that you want to send the email.



The screenshot shows a simulated email inbox interface with a single message from 'African Exponent Blogs' to the user. The message content is as follows:

Thank You Inbox

**African Exponent Blogs** <newsletters@africanexponent.com>  
to me ▾

Dear blogger,

Thank you for blogging on The African Exponent. The blogs community has grown significantly and the amount of readers that follow blogs has equally increased thanks to your insightful articles. As The African Exponent expands and welcomes more of your articles, we want you to know that we prioritize the seamless experience you have as you publish articles, therefore should you have suggestions on how to improve the publishing platform or how to support you to ensure that you continuously publish your fascinating articles, please let us know. We have recently implemented features of popular blog articles in The African Exponent weekly newsletters, this ensures that your articles reach most of your readers.

To ensure that the platform continues to receive interesting articles, we urge you to inform friends that you believe you might be interested in joining The African Exponent blogs community about the blogging opportunity.

Again, thank you the insightful articles. We look forward to publishing more of them in order to inform and engage with our readers.

Regards,

Blogs Team

You are receiving this email because you signed up for an account at The African Exponent or one of our newsletters.

Want to change the types of email you receive from The African Exponent?  
Update your preferences [here](#), or [unsubscribe](#).

[Privacy Policy](#) [Help Center](#) [Become a Sponsor](#) [Feedback](#)

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A sample native email constructed from a NileNode powered interface

## READ LATER

NileNode's Read Later feature allows users to add any article to their read later list. This helps the reader to keep track of all the articles they want to read. Articles added to the read later list can be accessed offline, **that is users can read articles that on the read later list even when they are not connected to the internet**. This feature is particularly important for regions where internet accessibility is challenging.

From your Read Later

Prev Next



**President Magufuli Resolves to Mend Relations with EAC**  
Although Tanzania has been labeled 'lone-ranger' in the past, it is no...  
[Archive](#)



**President John Magufuli is the True Leader Julius Nyerere Wished for Tanzania**  
"To break the chains of poverty. That's what he's trying to do. Mwalim...  
[Archive](#)



**Mugabe Donates 300 Cows to African Union**  
To help stop depending on aid funding, Zimbabwe's president, Robert Mu...  
[Archive](#)



**100 Reasons to Visit South Africa in 2017**  
Breath-taking sunsets, an incredible amount of beautiful and diverse w...  
[Archive](#)

Sample user's read later list

[Continues on the next page]

## CROSSWORD PUZZLES

The crossword puzzle is a feature that aims to keep your users engaged to the website long after viewing articles by having them solve crossword puzzles. In our experience working with several partners, we have seen crosswords have been used as one of the high sources of revenue through:

- Subscriptions
- Static Advertisements.

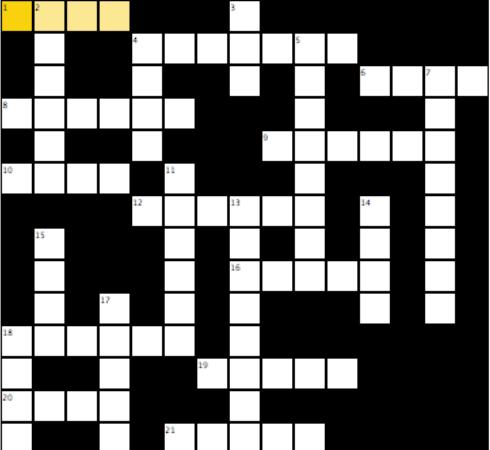
Users subscribe to play crossword puzzles. Advertisements placed on crosswords are always visible to users while playing and hence increasing advertisement impressions.

**African Crosswords » Daily**

**Crossword 2017-7-1-e18c**

African presidents crossword puzzle  
By: [The African Exponent](#)  
Sat Jul 01 2017

Share with friends



**Across**

- 1 Was exiled to and died in Saudi Arabia. (4)
- 4 First elected female head of state in Africa (7)
- 6 Has been married 6 times (4)
- 8 Became president when he was 29 (6)
- 9 His daughter is the richest woman in Africa (6)
- 10 First name of the head of state with the longest family name (4)
- 12 Rumored to be working on a farm in Equatorial Guinea (6)
- 16 President of an island nation in the Indian Ocean, also a biodiversity scientist (5)
- 18 Economic hero, often seen as a dictator (6)
- 19 President of Zambia (5)
- 20 Lost elections in 2008 and 2012, then finally won in 2016 (4)
- 21 President of Mali (5)

**Down**

- 2 Was a teacher in Zambia, Zimbabwe and Ghana. (6)
- 3 President of Gabon (3)
- 4 The only African president known to have sought shorter terms while in power (4)
- 5 Escaped South Africa after the High Court ordered his arrest (8)
- 7 Fun fact: loves wearing big hats (8)
- 11 Roch Marc Christian \_\_\_\_\_ (6)
- 13 Nicknamed "The Bulldozer" (8)
- 14 Has won elections 5 times, most recently in 2016 (4)
- 15 Has been in power for over 30 years (4)
- 17 Former president of Guinea-Bissau who served for less than 3 years (5)
- 18 Title of the leader in Lesotho (4)

[Check Entry](#) [Clear Entry](#) [Reveal Entry](#)

[Check All](#) [Clear All](#) [Reveal All](#)

Progress is automatically saved and available to all your devices.

A crossword powered by NileNode

## SUMMARY

NileNode is a complete and highly capable managed software that focuses on delivering news and media.

NileNode is intended to help you improve your online presence by giving your content creators a wide array of tools to help them do their work in a faster and more efficient way. NileNode also provides a better experience for your users to enable you to get more loyal subscribers than any other implementations on the market.

NileNode is a managed solution that enables you to focus on creating content and it takes care of aspects like:

- Ensuring your content can be consumed on many devices.
- Powerful tools to monitor your content performance.
- Ensuring that your data is secure while in transit (HTTPS).
- Ensuring that your data is secure at rest (Encryption).
- Reducing the risk of data loss (Backups).
- Support millions of page views depending on your needs.
- A broad feature set for your users to enjoy. (Crosswords, Read Later, Emails, Newsletter and many more).

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April 19th, 2018

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