CASE STUDY

Foreign Aid Agency Improves Web Application Performance over 11X at Remote Third World Sites

Highlights:

KOICA - South Korean International Cooperation Agency

Location: Seoul, South Korea with offices in Africa, Asia, the Middle East, and Latin America

Over 11X performance improvement

- KOICA provides development aid through more than 45 offices in struggling third world countries in Africa, Asia, the Middle East and Latin America. At many of these sites, web applications took several minutes to load, and often stalled completely due to poor network conditions.

- KOICA upgraded bandwidth where they could, but upgrades weren't available in many of the countries they served. They tried a leading WAN optimization tool in several remote locations, but saw little benefit. Often, performance became worse.

- After installing *Warp*Engine™ at their main office in Korea, KOICA saw massive performance gains across all locations, with more than an 11X improvement at one remote site.

KOICA
Korea International
Cooperation Agency

Challenge: Leading WAN Optimization Solution Fails to Deliver

KOICA provides development aid to combat poverty through more than 45 offices located in struggling third world countries in Africa, Asia, the Middle East and Latin America. At these remote locations, web applications took several minutes to load, and often stalled completely due to poor network conditions. Some sites relied on volatile Wi-Fi networks that were subject to severe RF interference and fading that compounded the problem. These issues badly hurt staff productivity and hampered the agency's ability to fulfill its mission.

Bandwidth upgrades weren't available in many of these third world countries, so they tried a leading WAN optimization tool that used compression, deduplication, and caching to speed up performance by reducing bandwidth usage. Unfortunately, these techniques aren't very effective at dealing with today's increasingly jitter-prone streaming services, IoT devices, voice, video and web applications that transmit data in unpredictable bursts. Network protocols interpret jitter as congestion, slowing traffic to avoid data loss until throughput collapses and applications stall, even when plenty of bandwidth is available.

Another issue for KOICA was that its network traffic had to be encrypted, as it contained sensitive government and financial data. This meant that optimization tools requiring unencrypted payload access for deduping and compression offered little value. In fact, they made performance worse by imposing encryption/decryption delays at each endpoint that slow down performance and increase jitter. Finally, because KOICA's ineffective WAN optimization tool had to be implemented at both ends of the network, it added maintenance overhead, as well as the security risk of exposing sensitive encryption keys at every remote location. In addition, it did nothing to address the volatile Wi-Fi networks at some remote sites that were subject to constant RF interference, adding to the performance challenges. Koica decided to abandon the well-known optimization tool after rolling it out at just two sites.

Solution: *Warp*Engine™ Combined with *Warp*Gateway™ at Selected Sites

Once KOICA learned about *Warp*Engine™, they requested an evaluation. *Warp*Engine™ leverages Badu Networks' patented technology to deliver improvements of up to 11X or more in performance and throughput by filtering out the impact of jitter, today's most common cause of network throughput collapse. *Warp*Engine's algorithmic approach to network optimization doesn't rely on deduplication or compression, so it requires no payload access. This enables *Warp*Engine to accelerate all types of traffic – encrypted, unencrypted or compressed without the performance and maintenance overhead, as well as the security risks of competing dual-ended optimization solutions. *Warp*Engine is single-ended and can be installed at any point on the network. It requires no changes to clients or servers, and no costly and disruptive bandwidth upgrades. *Warp*Engine also works in conjunction with existing optimization, SD-WAN, and ADC solutions.
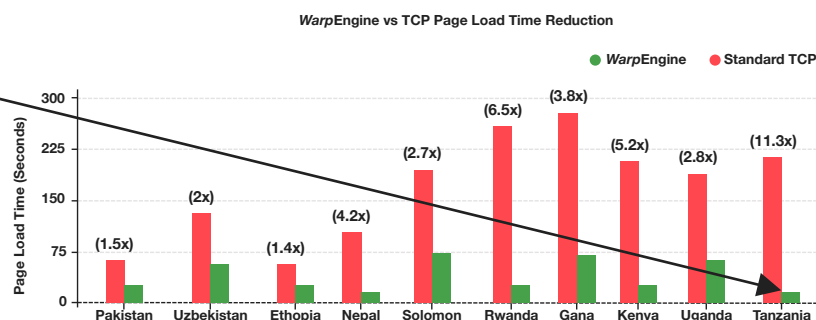
For an added performance boost, many customers like KOICA with branch offices that rely on volatile Wi-Fi networks, implement *Warp*Gateway™ at those locations. *Warp*Gateway filters out the impact of jitter caused by excessive RF interference, fading and other factors that can cause throughput and performance to collapse over the entire network path back to the application server.

Main Office in South Korea — *Warp*Engine™ — Internet — Branch Location — Gateway (WAN) — *Warp*Gateway™ (Optional) — Wi-Fi Router/AP — Users

For KOICA, *Warp*Engine's impressive performance numbers, easy installation, low cost, and the option of adding *Warp*Gateway at select branch offices struggling with volatile Wi-Fi networks, made it an obvious choice.

Results: Over an 11X Improvement in Performance

- WarpEngine deployed at headquarters in South Korea improved web application performance across all locations, reducing page load times by over 11X in some cases. Results are shown for Koica's most challenging sites in the graph below.

- Eliminated the security risk of exposing sensitive encryption keys at every location, as well as the maintenance overhead.

- *Warp*Gateway at remote branch offices with the most volatile Wi-Fi networks provided an even greater performance boost.

Over **11X** performance improvement

WarpEngine vs TCP Page Load Time Reduction

● *Warp*Engine ● Standard TCP

Page Load Time (Seconds)

Site	Multiplier
Pakistan	(1.5x)
Uzbekistan	(2x)
Ethopia	(1.4x)
Nepal	(4.2x)
Solomon	(2.7x)
Rwanda	(6.5x)
Gana	(3.8x)
Kenya	(5.2x)
Uganda	(2.8x)
Tanzania	(11.3x)

Resources: About *Warp*TCP™ Technology   About *Warp*Engine™ Appliance   Request a Free Trial

BADU networks

Founded in 2012, Badu Networks has become the market leader in network optimization solutions with our patented *Warp*TCP™ technology that delivers up to a 10x improvement in performance and throughput.

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