“My Vote is an I – Vote!”
A detailed analysis about the possibility and limitations of internet voting

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Executive Summary

For over a decade, internet voting has been an interesting topic of discussion for everyone ranging from political scientists to government officials to average citizens. The internet has revolutionized or streamlined many aspects of our lives. Therefore, it seems intuitive that applying internet use to voting would yield political benefits. The objective of this paper is to evaluate the potential for internet voting in the United States by examining the challenges and benefits of this technology, as well as a comparison to existing internet voting systems.

We begin with an analysis of the technical requirements of internet voting, as well as a likely outline of how the technology would be implemented. Next, we examine the benefits claimed to come from internet voting. We address whether the research supports the two main benefits of online voting, increased participation and cost reduction. We then discuss other obstacles facing internet voting such as start-up costs and voter acceptance. We follow up with a detailed roadmap of how the technology could progress, given certain optimistic assumptions.

Finally, we conclude that internet voting as a technology faces many obstacles against implementation. We find that even if the technological challenges are overcome, there are political and social barriers to adoption. Most damagingly, we believe that the benefits of internet voting are overstated, because they rely on a complete conversion to the technology. However, the most likely path to implementation is an incremental process that must take place alongside traditional voting technologies. Due to these issues, we think that internet voting will not be adopted in any meaningful form within the next decade.

Throughout our project, we also performed research on social networking in politics. Though we decided to shift away from that aspect in our final paper, we have included a short scenario describing how social networking can revolutionize politics (or rather, how it can continue to do so.)
Introduction
Every day, we make use of several conveniences without even realizing they exist. For quite some time now, the internet has been one such indulgence. From Google to Facebook, internet has been the single biggest factor responsible for placing the entire world literally at our fingertips. Despite this tremendous influence of internet on our lives, however, the relationship between internet and voting has always been very sour.

Imagine a world where it wasn’t. Suppose you wake up tomorrow and realize it is time to vote in the 2012 U.S. Presidential Elections. You open your laptop and (after checking your Facebook page, of course) log on to MyVote, the government contracted site devoted to participatory democracy. You look at your news feed, update yourself on the agendas of each of the candidates, and decide you are informed enough to cast your vote. After clearing an extensive identification system, you click a single mouse button, and voilà! – You have just picked your new President! MyVote immediately emails you your unique ‘I voted!’ bar-coded sticker, thereby confirming your vote. Having just experienced the wonders of a miracle called internet voting, you send reminders through MyVote to your family and friends urging them to vote, now that it is so easy and convenient! And then, you’re done – just like that – you've just carried out your duty as a conscientious citizen of the country – no paper, no long lines, no choked up election booths, no frustration and no wasted time. It has been a very proud ‘tomorrow’ indeed.

Sounds wonderful, doesn’t it? Who wouldn’t want this kind of future? But then...why has it not happened yet? Is the extensive identification system not secure enough? Is it not as cheap as the government thinks it will be? Is it not as easy as it sounds – or as convenient? We invite you to join us as we explore the possibilities and limitations in making elections a click away.

Description of Technology
In general, any system of voting that utilizes the internet to transmit ballots can be considered internet voting. This would include systems that use specialized machines at a polling place to record votes and transmit them to a central election authority for counting. Figure 1 shows the various stages that the internet could be integrated into voting systems. For the purposes of this paper, we mean internet voting to refer to the last of these stages, a system that allows eligible voters to cast their ballot from any computer (allowing for certain software requirements) with a connection to the internet. Of course, to get to this stage most likely requires mastering the less comprehensive systems first, since they share
many of the same obstacles. In fact, we will assume that the technology is adopted incrementally along this path, which was the recommendation of both the Swedish Election Technique 2000 Commission\(^1\) and the California Internet Voting Task Force\(^2\).

**Technical Challenges**

Because the act of voting is so central to the concept of democracy, any new system of voting must first satisfy basic procedural requirements before it can be endorsed on practical or utilitarian grounds. While arguments in favor of internet voting generally hinge on pragmatic factors such as convenience, efficiency, or cost-effectiveness, these advantages are meaningful only if internet voting can pass democratic standards in the same way that current voting technologies can. These litmus tests can be roughly divided into three categories: voter verification, ballot integrity, and ballot secrecy.

- **Voter verification**: Votes must only be cast by eligible voters.
  - The system must be able to authenticate the identity of the voter.
  - There must also be a secure list of eligible voters against which to check the authenticated identity.
  - Finally, the system must be able to recognize duplicate votes; each eligible voter should only be able to cast one ballot.

- **Ballot integrity**: Votes should be counted as they were intended to be.
  - A cast vote must not be able to be changed.
  - The system must correctly count and sum up all votes.
  - At no point in the process can someone enter the system and change the results.

- **Ballot secrecy**: No one should be able to find out from the system how an individual voted.
  - A ballot should not be able to be intercepted and read en-route.
  - There should not be a way to trace any individual ballot to its voter after the fact.
As can be seen, these criteria are not mutually independent across the three categories; some of them rely on the same technology, like a strong encryption system, while others (such as those relating to ballot secrecy and voter verification) seem to possibly interfere with each other. The major challenge is to design an internet voting system that can address each of these requirements.

Exactly how high the standard should be is also up for discussion. It seems reasonable that the standard should not be 100% infallibility; even traditional voting technologies would fall far short of that, being vulnerable to various forms of fraud, including voter registration fraud, ballot tampering, problems with electronic voting machines, and voter intimidation or misinformation. The details of how to create an adequately secure internet voting system can get very technical, touching on computer science fields like digital signature, encryption, and network security. Many of the computer science experts we talked with were skeptical about whether one could currently create a secure system fulfilling all the procedural requirements. However, at least one government committee tasked with investigating internet voting has created a general blueprint for a system that could theoretically meet these requirements. Without getting too technical, we provide a summary of that suggestion in the appendix; we will continue the main discussion with the assumption that while the technological challenges are not trivial, they can be solved using technology that currently exists, for the most part.

**Current Voting Technology**

As with any new technology, internet voting must offer advantages over existing technologies in order to supplant them. In the United States, elections “are administered at the state and local level... Currently, five technologies are used – paper ballots, lever machines, punchcards, optical scan, and direct recording electronic (DRE) systems.” Furthermore, states like Oregon and Washington have large-scale postal voting systems.

As a matter of fact, there already exists a national model for internet voting. Estonia, has embraced technology and the internet to an unprecedented extent. In 2005, Estonia’s municipal elections became the first legally binding elections to allow voting over the internet. Two years later, Estonia again set a record as the first, and still only, country to allow internet voting in a parliamentary election. Between the 2007 and the 2011 elections, the number of electronic votes skyrocketed from 3.4% of the total votes to 29.7%.

Internet voting in Estonia can be done two ways: with an ID card reader or with a SIM card and Mobile-ID. Both methods require the pin numbers (PIN1 and PIN2) which are issued by the Estonian Citizenship
and Migration Bureau with the official ID card. The use of national identification solves the problem of voter verification, but it leaves open the question of ballot secrecy or integrity. Numerous studies have been conducted to detect fraud in the Estonian system. So far, these analyses have been unable to detect any evidence of large-scale voter fraud. Nevertheless, there have been isolated reports of vote-buying and network vulnerability, so the possibility of small-scale election fraud exists in Estonia. Since Estonia has been the only successful example of internet voting on a national scale, we have referred to it wherever appropriate in the rest of our paper. However, we recognize that the Estonian model may not be generalizable to larger, more heterogeneous countries, so conclusions must be drawn with care.

The United States already has a well-established voting process, which is usually perceived satisfactory. (And cases where it seems unsatisfactory usually revolve around issues of vote security, which as discussed earlier, is not viewed as a strong point of internet voting.) If it is adopted, internet voting will likely go through the four stages shown in Figure 1. Each stage requires the solution of some, but not necessarily all, of the “procedural requirements” of internet voting

- **Stage 1:** Traditional voting at poll stations using electronic ballots submitted over the internet
  - This system will need to address the requirements of ballot integrity and secrecy, although the use of dedicated, secure machines at polling places will enhance security.
  - Voter verification will be done through traditional methods
- **Stage 2:** Voting from any polling place using electronic ballots submitted over the internet
  - Voter verification starts to become an issue, as each voting place must have access to a list of all registered voters and be able to check identity.
- **Stage 3:** Internet voting restricted only to certain official computers.
  - At this point, voters will be able to vote on publicly available computers such as those in libraries. Thus, voter verification becomes an important requirement to achieve.
- **Stage 4:** Internet voting from any computer with the necessary software.
  - This stage is full-scale internet voting.
  - All the previous technical requirements apply, as well as new problems such as personal computers with outdated protocols, nonstandard software, or malicious Trojan programs.

**Arguments for Internet Voting**

Attempting to modernize traditional voting by adapting it to accommodate technology developments has become a serious field of research across the globe. Banks, the IRS, department stores, and airlines have adopted computer-supported applications in order to facilitate consumer use. The applications
cover a variety of purposes including registration to downloadable forms. Still, the attempt to utilize the internet and computer systems for internet voting has not made any progress in the United States. Reasons for this will be discussed later. However the motives for applying electronic voting in US election processes are substantial enough to maintain serious thought into the validity of internet voting and a field of study in this area. The most important driving forces are listed include-

- Reducing the cost of voting
  - Discussed in detail later.
- Increased voter participation both in the country and overseas
  - Discussed in detail later.
- Faster more reliable voting results
  - Invalid votes are produced, intentional or not. About 5% of votes are not counted or considered due to a few reasons such as incorrectly filling out a ballot or ballots getting lost in the mail. An electronic system would decrease the number of votes since it can perform minor plausibility checks at “feeding time”, allowing software to identify mistakes. Though considered insecure, internet voting would eliminate fraud in the mailing vote system. Votes are collected into specific and marked bags that are easy to recognize and easy to take. Arguably, the paper ballot is well known to anyone interested in committing voter fraud because it has been in use for so long. This makes the overall system easier to track and manipulate. An electronic system will also facilitate the counting process since it can be automatically updated the instant a vote is entered.
- Convenience for voters
  - An internet based system is more accessible and could make registration and voting easier to those who are deterred by long lines and paperwork. Ideally this would also help college students, working professionals, the elderly, sick, abroad, and others who are unable to travel to a polling station the opportunity to vote conveniently.

Of these, the strongest driving forces for internet voting are assumed to be the two-fold benefits of increased turnout and decreased costs. The cost-reduction argument assumes that after an upfront cost to implement the system, the cost-per-vote will be lower in an internet system than with competing systems. Proponents believe that turnout will increase under an internet voting system because it is more convenient and better engages young people. Let us go through the validity of both these arguments in detail.

**Cost-reduction**

Currently, hundreds of voting booths have to be set up and thousands of people have to be hired to ensure that elections are being run smoothly. One of the biggest expenses in an election, however, is paper. Efforts to “go paperless” have been taken on by banks encouraging consumers to switch from
mailed bank statements to online versions. Americans have the option to file taxes online. Direct
deposit capabilities have reduced the need for paper checks. Together these efforts have saved money.
Internet banking costs about $0.01 per transaction as compared to ATM ($0.27 per transaction) or
television ($0.52 per transaction) banking. Efforts by the US Department of the Treasury to move from
paper-based to electronic processes will save taxpayers an estimated 500 million dollars over five
years.

Current voting uses paper in a variety of ways ranging from voter registration, voter information, ballots,
and envelopes for mail-in ballots. The total cost per vote, after adding in maintenance expenses for
election booths and salaries for employees comes up to roughly $4. The government believes that a
total shift from the current voting system to online voting will drastically drive down the price per vote,
bringing it to a mere $0.20 per vote. Of course, this does not factor in start-up costs to implement the
system.

As with any system, this projection comes with a timeline of transition. For a certain number of years,
the government will have to support both the current system as well as online voting. The cost of
running elections is expected to go up in this period. Consider the example of Estonia. When internet
voting was first implemented in Estonia in 2005, it cost their Government an implementing cost of about
a million dollars. Since the Estonian Government still runs both paper and electronic elections, and
because the internet voting systems have to be continuously maintained and updated, it still costs them
about half a million dollars of additional expense over their original system. Additional expense is only
expected to go up in the case of US national elections because of the larger scale. In fact, the U.S.
Election Assistance Commission (EAC) has projected a cost of $2,000,000 for voting system pre-election
logic, accuracy testing and post-election audits.

Ultimately, we should keep in mind that if it adopted internet voting, the government will need to fund
two voting systems for the foreseeable future, in order to not disadvantage those without internet
access. This suggests that rather than cutting costs, adoption of internet voting will increase costs in the
short term (above and beyond the fixed costs it takes to implement the system.) This would act as an
additional obstacle to its implementation.

Increase in voter turnout

Increase in voter turnout is taken to be another strong reason for the government to support internet
voting. About 57% of the people eligible to vote voted in the 2008 Presidential Elections. With the
introduction of internet voting, because of factors such as convenience of voting, the government
believes that this number will go up considerably. A strong argument for the same is provided by the Arizona’s online Democratic Party primary in 2008. Voter turnout went up from 238,942 in 2004 to 456,626 in 2008 – a 91% increase\(^{17}\). However, opponents of internet voting argue that this increase in turnout was more due to increase in voter awareness and novelty factor than due to voting being made available online. Evidence that internet voting doesn’t affect voter turnout significantly was found by a study conducted about internet voting and its effect on voter turnout in Estonia. The study stated that, “From the local elections in 2009 to the Parliament elections in 2011 the number of i-votes increased by 35%. Looking at the last Parliament elections in 2007, the number of Internet votes increased by the factor 4.5. Parallel to this development the general turnout increased only by 3% from 2009 to 2011 and by 1.6% when comparing the two Parliament elections”\(^{17}\). The following graph shows the turnout of voters in Estonia.

![Figure 2: Voter turnout in Estonia\(^{18}\)](image)

Thus, while the evidence pointed out that a significant amount of voters prefer the online voting solution to cast their vote, it also revealed that the overall number of people voting doesn’t change much because of internet voting. In fact, if higher turnout is desired, other policy choices may be more appropriate. Studies have consistently shown that typically the countries that have mandatory, enforced voting have higher turnouts (graph below)
All these facts leave the Arizona evidence (in favor of internet voting increasing participation) weak. Additionally, according to Professor Michael Alvarez (who specializes in internet voting), internet voting will skew the voter representation – that the digital divide will make elections more elitist rather than more democratic, and it may actually be a threat to minority voting rights. Keeping all this in mind, we think that short of mandatory voting, the following scheme may have the highest chance of increasing voter turnout:

Additional Obstacles

The previous section details how the cost-reduction and increase in voter turnout arguments aren’t as effective as they are projected to be. Security and privacy are two other issues that come up when dealing with the subject of internet voting. Since we have already discussed the technological aspects of these issues, we will briefly focus on other obstacles that can have significant impacts.
Privacy

Privacy is an issue that requires attention from two perspectives. First, the government would need to maintain a low transparency about implementing security technology. Using intricate security measures with various levels of cryptography requires discretion. This means the voter will have less knowledge about the voting process and possibly generate an inclination towards rejecting the new system.

Second, the internet is not well known for its security. Users are warned to be wary of what pictures they post, information that is shared, and even Facebook friend choices. Furthermore, due to the nature of the internet, attacks on the system can be mounted from anywhere in the world, making large-scale fraud logistically feasible. So how can internet voting be secure? The current ballot system uses a secrecy policy that ensures a voter complete privacy. No one will be able to connect the voter to any individual ballot so that voting preferences will be kept private. An internet system must not only do the same, but also convince the public that it does. It may turn out the hardest task isn’t to create a secure system, but to create public trust in that system.

Sense of Civic Duty

When people think about voting as a civic institution, they focus on the feeling of participating, of taking responsibility, and the excitement of not knowing who is going to win. Congressman Adam Schiff believes that with internet voting, this inherent sense of duty will lose its importance. According to him, making voting so convenient and impersonal will defeat its value of civic engagement. For example, the Congress uses electronic voting in the actual chambers, and there are discussions about expanding the process to remote voting, so that congressmen can vote even while not physically present. However, Representative Schiff doesn’t think that this should be allowed, because legislating is done a lot more efficiently through person-to-person interactions. He feels (and we concur) that this lack of personal touch will be a big deterrent in the development of internet voting.
Opposition on Partisan Grounds

One more important factor to consider in this discussion is the impact of internet voting on partisan voting. The Democratic and Republican parties draw support from different demographic groups. For example, rich people are more likely to vote Republican\textsuperscript{24} while minorities and poorer people tend to vote Democratic. More importantly, there are significant shifts in party affiliation between different age groups.\textsuperscript{25} Because Internet voting promises to be a more convenient method of voting, it is predicted to increase turnout disproportionately for younger voters. First, young voters consistently have the lowest turnout in elections,\textsuperscript{26} so they have the largest room to grow. Secondly, young voters are seen as more open towards using the internet for various activities. Since young people lean the most towards Democrats, internet voting is potentially a threat to Republican electoral strategy. As Representative Schiff notes, Republican voters tend to be more consistent voters, while Democratic voters are more easily discouraged. Thus, Republican lawmakers generally support efforts to tighten voting regulation in the interest of “vote security”, advocating laws requiring voters to show photo ID or raising standards for registration.\textsuperscript{27} Internet voting can be seen as another potential procedural battleground between the left and the right.

\begin{figure}[h]
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\includegraphics[width=\textwidth]{figure4.png}
\caption{2010 Party Affiliation by Age Group\textsuperscript{25}}
\end{figure}
In fact, a study conducted as a part of the Caltech/MIT enterprise\textsuperscript{28} forum had the following results –

- Overall support for Internet voting in the United States is not high; 31.0% support internet voting, 46.9% oppose this reform, and 22.1% are undecided.
- Republicans are much more opposed to Internet voting than are Democrats.
- Only 20% of Republicans support the idea of Internet voting and 65.2% of Republicans oppose it.
- By contrast, 37.4% of Democrats support Internet voting and a roughly equal percentage (38.7%) of Democrats oppose it. In addition, almost 24% of Republicans are undecided about Internet voting compared to only 14.9% of Democrats.

To conclude, all the benefits of an electronic voting system rely heavily on the assumption of a total internet system. The only way to experience the full benefit of the system would be to eliminate all other voting options. In truth, an internet based system will first be introduced as a supplement to current voting procedures. Assuming that the internet system is a substitute is a mistake.
Road Map to Remote Online Voting

In order to achieve the remote online voting Estonia currently uses, we need to progress through each of the following four stages.

<table>
<thead>
<tr>
<th>Stage 1: Traditional voting using electronic ballots submitted over the internet (start 2011, end 2012-2013)</th>
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</thead>
<tbody>
<tr>
<td>security over the internet</td>
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<tr>
<td>integrity of ballot</td>
</tr>
<tr>
<td>secret ballot</td>
</tr>
<tr>
<td>paper trail</td>
</tr>
</tbody>
</table>

Stage 2: Voting from any polling place using electronic ballots submitted over the internet (start 2012-2013, end 2019-2020)
- centralized voter registration system

Stage 3: Internet voting, restricted only to certain official computers. (start 2019-2020, end 2023-2028)
- voter identification
- verification of voter registration and eligibility
- handling heavy internet traffic

Stage 4: Internet voting from any computer with the necessary software. (start 2023-2028, hard to predict end)
- security of individual computers

Figure 6. Stages of roadmap with predicted dates for the start and end of each stage. Beneath each stage are the challenges associated with that stage.

Voting at a poll place allows the administrator to control many factors to ensure that:

- the voter is properly identified
- the voter is eligible and registered to vote
- the voter submits a secret ballot
- the voter’s ballot can be counted and
- the voter’s ballot can be audited through a paper trail.

In order to do this, he needs to have people overseeing the process at a specific time and place. Each of the four stages incrementally relaxes the oversight needed and what challenges must be overcome. This
is an optimistic scenario where the technological challenges can be addressed and legislative challenges can be overcome.

**Stage 1: Traditional voting at poll stations using electronic ballots submitted over the internet (start 2011, end 2012-2013)**

Here the voting experience is the same for the voter. Only the method of transmitting the vote to a central reporting location is different. A successful system will be able to securely count and transmit recorded ballots, while still providing a paper trail. This is a silent incremental change that most people will not notice. State governments must be prepared to deal media attention relating to security issues and must have a plan to approach this problem.

*Milestones:*

- security over the internet
- convincing the public that the ballot will not be changed
- convincing the public that the ballot is secret
- paper trail

**Stage 2: Voting from any polling place using electronic ballots submitted over the internet (start 2012-2013, end 2019-2020)**

Here the freedom is that the voter can choose the voting location from more than just the one that he is assigned. This requires a centralized voter registration system to check the voting registration and eligibility. The Help America Vote Act (2002) requires such a system. California is currently working on a system called VoteCal started in 2006. This program is likely going to take at least eight years to implement.

*Milestone:*

- implementing a centralized voter registration system

**Stage 3: Internet voting, restricted only to certain official computers. (start 2019-2020, end 2023-2028)**

Now voters have the freedom to vote at location other than the traditional polling stations. They will be allowed to vote in state owned computers in buildings such as schools and libraries allowing for more locations and shorter lines. Since there is no person overseeing the election process, voter identification, verifying the voter’s eligibility, and voter registration will be more
difficult. The implementation of a new ID card is likely necessary. In 2005, Congress passed a law (Real ID Act) to improve its driver’s license security in response to the 9/11 Commission’s report.\textsuperscript{30} As a result, many states had to redesign their driver’s licenses, announcing them from 2009 to the present (Figure 7). Among this set of states, an average of five years were needed to implement this law. However, there are still states that have not become compliant. They have until January 15, 2013 to become so.\textsuperscript{31} This is the third time that the deadline has been extended, so more changes could occur. Part of the reason these changes have taken so long to implement is due controversy surrounding the law. Many states (19 in total) have passed legislation challenging the Real ID Act on the grounds of privacy and states rights.\textsuperscript{32} This is an example of how long the legislative process can take. An ID for online voting may be just as controversial. An estimate of four to eight years is needed for such an ID system. With such long time frames, estimates become hard to predict due to the number of issues that could arise.

\textit{Milestones:}

- voter identification
- verification of voter registration and eligibility (ID card)

\begin{figure}
\centering
\includegraphics[width=\textwidth]{years_of_new_id_designs.png}
\caption{Figure 7. Years when states introduced new ID designs.}
\end{figure}

\textbf{Stage 4: Internet voting from any computer with the necessary software. (start 2023-2028, hard to predict end)}

Here the restriction on the machine used to vote is relaxed. This brings up issues of security and technology. Voters may have computers that are not compatible or do not meet the minimum requirements of the software needed to vote. The larger issue is the susceptibility of individual
computers to Trojans or computer viruses that compromise the security and secrecy of the vote. It is unclear whether this problem can ever be solved. Getting millions of people educated about internet security is a great challenge. As with a vaccine, anyone not inoculated will make themselves and others more susceptible to viruses (in this case on the computer).

*Milestones:*

- security of individual computers

Throughout this scenario, we have assumed certain factors exist to push through the change. These factors are:

- Solving the security and privacy issues
- Overcoming legislative roadblocks
- Gaining public acceptance
  - Convincing them that privacy is maintained
  - Ensuring that the ballot is unaltered

Should any of the following factors fail, we will result with the worst case scenario where internet voting is not implemented and we keep our current mix of paper and electronic voting stations at poll places.

**Conclusion**

Ultimately, the development of internet voting on any sort of large scale suffers from a few interconnected problems. First, unresolved questions about “procedural requirements” ensure that internet voting must be adopted incrementally. These security problems are not insurmountable, but due to the high profile and high stakes nature of elections, the government will need to double check each solution. This leads to a slow rollout. Furthermore, the advantages of internet voting, mainly increased turnout and decreased cost, will most likely not manifest in an incremental implementation. The research casts doubt that internet voting will even have a significant effect on turnout, while the realities of implementing the system alongside traditional voting technologies mean larger costs in the short and medium terms. Thus, outside of broad public demand for internet voting, electoral authorities have little incentive to create internet voting systems. However, doubts about the security of internet voting causes the public to distrust the system, which leads to even lower chances of adoption.

We feel that although internet voting has advantages as a complete system, the piecemeal adaptation necessary to prove its viability makes it an unattractive technology to implement. In the near future (~10 years) the most likely move towards implementation is through government legislation mandating
election standards for absentee voters; internet voting likely has a niche in these small scale systems to streamline voting.
Addendum: Scenario for Social Networking in Politics

Press Release.

The Smith Campaign has named Jason Aide as the Social Media Advisor for Governor John Smith. Smith, the governor of a Midwestern state, officially announced his candidacy for President last week, and political bloggers had been eagerly guessing who he would hire to head his social networking strategist.

Until recently, the Social Media Advisor was an unheard-of position, but in the current political environment, the position is seen as one of the top three most important staff positions in a campaign. Social networking plays an integral role in nearly every aspect of the modern campaign, from fundraising before the campaign is officially announced to the get-out-the-vote (GOTV) efforts on Election Day. As the Social Media Advisor, Jason Aide will oversee the entirety of the campaigns social media strategy.

Although social networking has been around since the mid-2000’s, it has taken politicians several election cycles to utilize the new tools to their full potential. Early adopters often focused on one aspect of social networking; for example, Howard Dean pioneered internet fundraising in his 2004 presidential bid, however the “Dean Scream” episode that effectively ended his candidacy showed a surprising unpreparedness in dealing with new media. Likewise, former Vice-Presidential candidate Sarah Palin never figured out how to leverage her passionate Facebook and Twitter following into mainstream political success. Even President Barack Obama’s 2008 Presidential campaign, at the time lauded for the sophistication of its social networking strategy, seems amateurish compared to current standards in political campaigning.

The modern landscape of social networking in politics first fully formed after the launch of MyPolitics, a social networking site geared specifically towards the needs of political candidates. Its first superficial improvement was to integrate existing social networking services such as Facebook, Youtube, and Twitter, into one central virtual space. By this time, social networking sites had exploded, and some politicians had profiles on over fifty sites. Needless to say, politicians who embraced social networking had struggled with dealing the sheer volume of communication; MyPolitics offered them a way to efficiently respond to their supporters by compiling comments from various sites and then categorizing and sorting them using algorithms that took into consideration the basic structure of the user’s social network.

But more importantly, MyPolitics recognized that each connection in social networks was not just a two-way communication line, but an actual relationship, and that to unlock the power of social networking required understanding this fact. For example, one innovation MyPolitics offered was to route certain questions and comments that came from, say, Facebook, not to the politician or his staff, but to users in the commenter’s own social network who were supporters of the campaign. Just as traditional ground campaigns have found that the most persuasive pitch comes from one’s own family or friends, MyPolitics utilizes the social information inherent in the social network to connect undecided or even hostile voters with those most likely to change their minds.
Similarly, MyPolitics has almost entirely supplanted the old practice of using call centers. In old-fashioned campaigns, politicians would recruit scores of volunteers to gather in a center and make hundreds of phone calls to complete strangers in key locations (swing-states for example). Obviously, this method has many apparent drawbacks and seems very inefficient, but it was seen as the best way to reach voters.

Now, using MyPolitics, politicians simply compile lists of supporters who are interested in voter outreach and email them a list of people to contact. The lists are created by MyPolitics using proprietary algorithms that identify and match the voters most likely to be swayed (often undecided voters) and those among a candidates supporter’s who are most likely to make an impact.

Jason Aide explains how this works: “For example, if MyPolitics decides that my brother Kevin in Florida is on the fence about the presidential election, it will search among Governor Smith’s supporters for those closest to Kevin who also happen to be strongly supportive of the Governor. In this case, the best match will most likely be me, since I’m a family member and directly involved in the election campaign. I’ll get notified that if I’m interested in voter outreach, I should contact Kevin to have a chat about the election. It’s all voluntary of course, but it’s also very natural. I talk about politics with a lot of people; MyPolitics just helps me recognize where my efforts could make the most impact.”

Of course, not everyone thinks MyPolitics is so benign. In fact, what makes MyPolitics so useful is what gets many people worried. “MyPolitics suggestions for voter outreach are like 90% correct,” says Joe Concerned, who advocates for Privacy Matters, a non-profit dedicated to protecting privacy in social networks. “That means that 90% of the time, MyPolitics was correct in that the voter is undecided, and the supporter they pick is someone close to the voter. That’s too high. I mean think about your friends. Could you predict with 90% accuracy whether they were undecided this election? Do you know even know with 50% accuracy who the people in your social network are voting for? MyPolitics knows more about us than we do ourselves, but it’s all done behind a black box. They don’t tell you what information they look at, but it’s obviously a lot, if it can be so accurate.”

When presented with criticisms like these, Jason Aide is unconcerned. “You know, there’s always going to people who don’t like change. But this is how things are. MyPolitics is just too powerful of a tool to ignore.” He pauses and grins. “Anyway, do you really want to go back to the old days, when living in a swing state meant that every election, you’ll get five calls a day from random strangers wanting to talk about the candidates?”
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Appendix

How a Secure Online Voting System Could Work

This system was developed by a research group at the Swedish Institute of Computer Science presented in the Final Report from the Election Technique 2000 Commission on Technology and Administration in Election Procedure. It should address the following issues.

- Voter verification
- Ballot integrity
- Ballot secrecy

The system has the following components:

- Voters
- Electron Ballot Box to collect the votes
- Scramblers to make the voters anonymous
- Vote Tallier to count the votes

Figure. How the votes are collected. The ballot box collects the votes, matches the names against the electoral register, and outputs the valid votes.

1. Voters submit votes into the online ballot box. Votes consist of the voter’s name and their vote which is triple encrypted (denoted by x'''). The vote is digitally signed by the voter.
2. Voters can change their vote by voting again and the last vote cast is used by the ballot box.
3. The ballot box matches the votes with the electoral register and passes on the votes from eligible voters.
4. The encrypted votes are sent to scramblers that decrypt only one the three layers at a time and randomizes the votes.
5. Each of the scramblers are operated individually, so all three are needed to match specific voters with their votes.
6. Once the third scrambler outputs the decrypted votes, a vote tallier can come and count the votes publicly while maintaining secrecy and confidence in the vote.

Auditing

To enable auditors to check the results, inputs and outputs from the ballot box and scramblers are published. If users do not trust a particular scrambler, they can generate the result that they should and find it in the output, but this also allows people to prove that they voted a certain way to vote buyers.